Bureau of Air Quality

South Carolina Department of Health and Environmental Control

State of South Carolina:
Network Description and Ambient Air Network Monitoring Plan

Calendar Year 2008

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South Carolina Department of Health
and Environmental Control

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The information contained in this network description and Ambient Air Monitoring Plan for 2008 is complete and accurate at the time of submittal to EPA Region 4. Due to circumstances that may arise during the implementation of the plan and sampling year, some elements of the network may require modification. A notification of modifications will be posted on the SC DHEC website and provided to EPA Region 4. Where necessary, a request for approval of deviations from this plan and supporting documentation will be submitted to EPA Region 4.

Acronyms
AQCR – Air Quality Control Region
AQI – Air Quality Index
AQS – Air Quality System
BAQ – Bureau of Air Quality
BC – Black Carbon
CAAA – Clean Air Act Amendment
CBSA – Core-Based Statistical Area
CRF – Code of Federal Regulation
CSA – Combined Statistical Area
DAQA – Division of Air Quality Analysis
EPA – Environmental Protection Agency
FDMS – Filter Dynamics Measurement System
FEM – Federal Equivalent Method
FRM – Federal Reference Method
GC/MS – Gas Chromatography / Mass Spectroscopy
HPLC – High Performance Liquid Chromatography
IC – Ion Chromatography
ICP – Inductively Coupled Plasma
IMPROVE – Interagency Monitoring of Protected Visual Environments
ICP/MS – Inductively Coupled Plasma Mass Spectroscopy
LAC – Light-Absorbing Carbon
MET - Meteorology
mSA – Micropolitan Statistical Area
MSA – Metropolitan Statistical Area
NAAQS – National Ambient Air Quality Standards
NADP-MDN – National Atmospheric Deposition Program Mercury Deposition Network
NCore – National Core Monitoring Network
NPAP – National Performance Audit Program
PEP – Performance Evaluation Program
PSD – Prevention of Significant Deterioration
PTFE - Polytetrafluoroethylene
PUF – Polyurethane Foam
QA – Quality Assurance
QAPP – Quality Assurance Project Plan
QC – Quality Control
SAMWG – Standing Air Monitoring Working Group
SCDHEC – South Carolina Department of Health and Environmental Control
SLAMS – State and Local Air Monitoring Station
SPM – Special Purpose Monitor
STN – Speciation Trends Network
TBD - To be determined
TEOM – Tapered Element Oscillating Microbalance
TEOM FDMS – Tapered Element Oscillating Microbalance Filtered Dynamics measurement system
TOT – Thermal Optical Transmittance
TSP – Total Suspended Particulate
US EPA – US Environmental Protection Agency
UV – Ultraviolet
WGS84 – World Geodetic System of 1984 revised in 2004
XRF – X-ray Fluorescence Spectroscopy

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Introduction

In October 1975, the United States Environmental Protection Agency (US EPA) established the Standing Air Monitoring Working Group (SAMWG) to critically review and evaluate current air monitoring activities at that time. The review by the SAMWG indicated several areas where deficiencies existed which needed correction. The principal areas needing correction were: an excess of monitoring sites in some areas to assess air quality; existing regulations did not allow for flexibility to conduct special purpose monitoring studies; data reporting was untimely and incomplete caused by a lack of uniformity in station location and probe siting, sampling methodology, quality assurance practices, and data handling procedures.

In August 1978, to remedy the deficiencies in the existing monitoring activities, the recommendations developed by SAMWG were combined with the new requirements of Section 319 of the Clean Air Act. Section 319 provided for the development of uniform air quality monitoring criteria and methodology, reporting of a uniform air quality index in major urban area' and the establishment of an air quality monitoring system nation-wide which utilizes uniform monitoring criteria and provides for monitoring stations in major urban areas that supplement State monitoring.

In May 1979, air monitoring regulations incorporating the revisions the recommendations and requirements were finalized by the US EPA, requiring certain modifications and additions to State Implementation Plans to address air quality surveillance. The regulations require each state to operate a network of monitoring stations designated as State and Local Air Monitoring Stations (SLAMS) that measure ambient concentrations of air pollutants for which standards have been established.

The ambient monitoring rules were further refined in October 2006 with modifications to require Quality Assurance, Monitor designations(NCore, SLAMS, and SPM), minimum requirements for both number and distribution among MSAs, and probe siting changes. The regulations also specify the requirement for an annual monitoring network plan and periodic network assessment.

The South Carolina Department of Health and Environmental Control Air Program has operated an air quality monitoring network in South Carolina since 1959. Since that time, the network has continually evolved to meet the requirements and needs of the Air Program. In 2007 the network was comprised of approximately 150 monitors and samplers at 48 sites.

The SLAMS air monitoring network is specific for the criteria pollutants, those pollutants for which National Ambient Air Quality Standards (NAAQS) have been established. In addition to a SLAMS network, the air monitoring network includes special purpose monitors (SPM) for air toxics, particulate, mercury, criteria pollutants, precipitation and meteorology.

The annual monitoring network plan, as required and described in 40 CFR Part 58.10, Annual monitoring network plan and periodic network assessment, must contain the following information for each monitoring station in the network:

The Air Quality System (AQS) site identification number for existing stations.

The location, including street address and geographical coordinates, for each monitoring station.

The sampling and analysis method used for each measured parameter.

The operating schedule for each monitor.

Any proposal to remove or move a monitoring station within a period of eighteen months following the plan submittal.

The monitoring objective and spatial scale of representativeness for each monitor.

The identification of any sites that are suitable for comparison against the $PM_{2.5}$ NAAQS.

The Metropolitan Statistical Area (MSA), Core-Based Statistical Area (CBSA), Combined Statistical Area (CSA) or other area represented by the monitor.

This document constitutes the South Carolina air monitoring network plan and is organized into two main parts:

Network Summaries: Presenting the total number of sites and monitors for the state. Also included is a listing of all proposed changes to the current network.

Air Monitoring **Station Description:** An outline of the designations, parameters, monitoring methods and the purpose for each monitor at the site.

The Ambient Monitoring network will be reviewed annually and planned changes will be described in this plan (and its annual revisions) and provided for public review and comment prior to submission to the US EPA Region IV Administrator.

2008 Monitoring Network Plan: Public Participation Opportunities

In anticipation of the need for an updated monitoring plan, heightened public interest and potential impact of the Monitoring Rule changes, the Air Program began soliciting involvement from both internal (to SCDHEC) and external workgroups.

The Internal Workgroup included representatives of all areas of the Air Program (Permitting, Planning, Modeling, Compliance, Outreach, and Monitoring) and included participation of potential data users from other areas of the Agency.

An External Work Group was formed with invited representatives of the Business, Environmental and Health communities.

As part of the preparation requested by the groups a one day public training session was held in April, 2006. The 'Monitoring 101' course had over 100 participants. Other opportunities for public involvement include:

A web page established for draft and reference documents and announcements.[1]

Site Evaluation Training.

Site visits and input provided from the internal and external group site evaluations.

Formation of, and regular meetings with, a Greenville-Spartanburg-Anderson Stakeholders Group.

Formation of, and meetings with, a Georgetown Stakeholders Group.

Formation of, and meetings with, a Central Midlands Stakeholders Group.

Availability of the proposed Ambient Monitoring Plan for public review and comment from May 9 to June 8, 2007. All recorded participants in any of the outreach and discussion were notified when the plan became available for review.

The opportunities for participation by data users and the public will continue through the inclusion of all non-criteria parameters monitored in the South Carolina Ambient Monitoring Network in the 2008 plan. The Department is committed to continuing the involvement and participation opportunities in the development of the annual revisions of the Monitoring Plan and the periodic assessments of the air quality surveillance system.

Network Operation

The primary responsibility for the operation of the South Carolina Ambient Monitoring network is assigned to the Division of Air Quality Analysis of the Bureau of Environmental Services. The Division of Air Quality Analysis establishes, maintains and operates the sites and instruments that make up the network and performs the analysis of samples collected as part of routine monitoring or special projects. All data generated by the network is verified to be accurate and reported by the Division and stored in the national database.

All criteria pollutant monitoring is performed using EPA designated Federal Reference Methods (FRM) or Federal Equivalent Methods (FEM) to insure the precision and accuracy of the measurements across the state network and that the data can be compared to the National Ambient Air Quality Standards.

Regular calibration and audits of the measurement systems are performed to verify that the instruments are operating correctly and data being collected is accurate. The Quality

Assurance (QA) activities supporting the South Carolina network meet or exceed the Quality Assurance requirements defined in 40 CFR §58 Appendix A (Quality Assurance Requirements for SLAMS, SPMs and PSD Air Monitoring).

Raw data is collected hourly from sites across the state and provided to internal data users (forecasters and data analysts) and to the AIRNow database for presentation to the public. Before the data is submitted to the national Air Quality System (AQS) database it is verified to be accurate through review of the instrument Quality Control (QC) and QA performance documentation.

All criteria pollutant monitors and samplers are sited and operated consistent with the requirements of 40CFR §58 and Appendices A (Quality Assurance), C (Methods), D (Network Design) and E (Probe siting) and the data collected by these samplers and monitors is suitable for comparison to the National Ambient Air Quality Standards.

An element of the Quality System employed by the air monitoring program is periodic assessments of systems and monitor performance. As the Primary Quality Assurance Organization for ambient air monitoring activities, the Division of Air Quality Analysis operates under the approved EQC Quality Assurance Management Plan, the Ambient Air Quality Monitoring Quality Assurance Project Plan and approved plans for specific projects. EPA Region 4 provides periodic Technical Systems Audits of data collection and reporting. DAQA also participates in the National Performance Audit Program (NPAP) and the Performance Evaluation Program (PEP) for independent audits of criteria pollutant monitoring and performance.

Station Description Content

Specific siting information for each site and monitor is stored in the US EPA's Air Quality System (AQS), the national ambient air database. The AQS Site Description includes the exact location of the site, local and regional population, and description of the site location, monitor types, and monitoring objectives. This site and monitor information is routinely updated whenever there is a change in site characteristics or pollutants monitored.

AQS is used as the primary repository for all South Carolina ambient monitoring data including site descriptions. All ambient monitoring data possible is stored in AQS, including non NAAQS parameters, ambient toxics, particulate and supporting quality assurance data.

Station Description

The network station descriptions contained in this document include the following information:

Site Description

The Header for each site includes:

Site Name

The **Air Quality Control Region** (AQCR) name and Id number- AQCRs were established as part of the CAAA

The **Core Based Statistical Areas** (CBSA) as defined by the US Census. (November 2004)

AQS Site ID: The unique site identification number used in the Air Quality System (AQS), the national database for air quality ambient monitoring data. In the form:

45-0cc-ssss Where
45 is the state identification code for SC,
cc is the county identification code and
ssss is the site identification code within the county

Location: Typically the street address of the site where available.

County: County in which the site is located

Coordinates: Listed in decimal degrees, Latitude (N) then Longitude (W) using WGS84 projection.

Date Established: The date when each existing monitoring station was established is shown in the description. For new stations proposed in this plan, a date is provided when it is expected for the station to be in operation. Individual monitors at a site may have differing start and stop dates.

Date of most recent **Site Evaluation:** Each monitoring station in the network is periodically visited to determine whether all probe exposure criteria required for SLAMS and SPM monitors are met. If necessary, corrective action is scheduled to correct deficiencies.

Monitor Details

In a table associated with each site the parameters monitored at that site are listed along with descriptive information associated with that parameter.

Parameter

Criteria (compounds for which a National Ambient Air Quality Standard has been established), non Criteria and/or supporting parameters (primarily meteorological measurements) measured at the site are listed.

Scale

Each station in the monitoring network is described in terms of the approximate physical dimensions of the air parcel nearest the monitoring station throughout which pollutant concentrations are expected to be reasonably similar. This is most often referred to as the Scale of the monitor. Area dimensions or scales of representativeness used in the network description are:

(a) Microscale

Defines the concentration in air volumes associated with area dimensions ranging from several meters up to about 100 meters.

(b) Middle scale

Defines the concentration typical of areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 kilometers.

(c) Neighborhood scale

Defines concentrations within an extended area of a city that has relatively uniform land use with dimensions ranging from0.5 to 4.0 kilometers.

(d) Urban scale

Defines an overall citywide condition with dimensions ranging from 4 to 50 kilometers.

(e) Regional scale

Defines air quality levels over areas ranging from 50 to hundreds of kilometers in diameter.

The scale of the monitors at each site is also represented by maps showing the maximum dimension of the respective scales centered on the site location. These are provided for reference only. The true representative area may best be described by a more irregular shape accounting for local sources and differing land use.

The representative scale of a monitor is closely associated with the objective of the monitoring.

Objective

The ambient monitoring network is designed to meet three primary objectives:

Provide air pollution data to the public in a timely manner. Near real-time data is made available on the internet through AIRNow and Pollutant Standards index reporting and forecasting in the major metropolitan areas.

Support compliance with ambient air quality standards and emissions strategy development. Monitors are operated to measure concentrations for comparison to NAAQS and to provide information to aid the development of strategies to improve air quality.

Support air pollution research studies. Data from the monitoring networks support greater understanding of the impacts and effects of ambient air pollution.

Individual monitors that support these basic objectives generally serve one or more of the following purposes:

- Determine highest concentrations of pollutants,
- Determine representative concentrations in areas of high population density,
- Determine impact on air quality of significant sources or source categories,
- Determine general background concentrations,
- Determine extent of Regional pollutant transport and
- Determine welfare-related impacts in more rural and remote areas (ex. visibility impairment and impacts to vegetation)

The design intent in siting stations is to correctly match the area represented by the sample of monitored air with the area dimensions most appropriate for the monitoring objective of the monitor. The relationship of appropriate scale to the six basic purposes are:

Monitoring Objective	Siting Scale
Highest concentration	Micro, Middle, Neighborhood
Population	Neighborhood, Urban
Source impact	Micro, Middle, Neighborhood
General/background	Neighborhood, Regional
Regional transport	Urban, Regional
Welfare-related impacts	Urban, Regional

Monitor and sampler data is regularly reviewed to assure the assigned scale is correct and appropriate for the intended objective.

Designation

Required and long term criteria pollutant monitors described in the air quality monitoring network are designated **State and Local Air Monitoring Stations (SLAMS)**.

SLAMS: US EPA requirements for air quality surveillance systems provide for the establishment of a network of monitoring

stations designated SLAMS that measure ambient concentrations of those pollutants for which standards have been established. These stations must meet requirements that relate to four major areas: quality assurance, monitoring methodology, sampling interval and siting of instruments and instrument probes.

Monitoring at some locations meets Air Program needs beyond that necessary for compliance with minimum requirements. **Special Purpose Monitors (SPM)** are operated to meet specific Air Program needs and may be long term or part of special studies designed to answer specific questions.

SPM: All monitors in the air quality surveillance network not designated SLAMS are Special Purpose monitors. Special Purpose Monitors support investigations addressing complaints, areas and pollutants of concern, network refinement, modeling verification and compliance. These monitors are committed to investigation and projects as described in the associated Quality Assurance Project Plan (QAPP). They may be located as separate monitoring stations or be included at existing monitoring locations. Monitoring data will be reported to AQS where possible. Siting and probe exposure will conform to all requirements for SLAMS monitors whenever possible.

Both SLAMS and SPM data may be used in the reporting of an area Air Pollutant Quality Index.

Air Quality Index (AQI): The AQI is a method of reporting that converts concentration levels of pollution to a simple number scale of 0-500. Index reporting is required for all urban areas with a population exceeding 350,000. Intervals on the AQI scale are related to potential health effects of the daily measured concentration of the measured pollutants. All stations in a metropolitan area provide data for daily index reporting. Data collected from continuous monitors for Ozone and $PM_{2.5}$ monitors is collected hourly and reported as AQI maps on EPA's AIRNow website. A daily AQI is provided for the Greenville-Spartanburg, Columbia, and Charleston-North Charleston areas.

Probe Height

The monitor or sampler probe is the point where ambient air enters the analytical or sample collection system. Ideally, air would be sampled at approximately nose height, but due to operational, exposure and security considerations air may be sampled further from ground level. Proper probe height is specified in the monitoring regulations (typically between 2 and 15 meters) and is checked as part of the periodic site evaluations

Analysis Methods

All sampling and analytical procedures used in the air monitoring network for the criteria pollutants will use designated Federal Reference (FRM) or equivalent (FEM) methods.

- **Particulate Matter 10 microns in size (PM_{10})**

All PM_{10} samplers operated by SCDHEC are designated as either FRM or FEM samplers and are operated according to the requirements set forth in 40 CFR §50 and 40 CFR §58. Intermittent samplers collect a 24-hr sample no less than every sixth day on a quartz filter. The filter is conditioned and weighed before and after the sample run. The gain in weight in relation to the volume of air sampled is calculated in micrograms per cubic meter ($\mu g/m^3$). The quartz filters are equilibrated before each weighing for a minimum of 24 hours at a 20-23°C mean temperature and a 30-40% mean relative humidity.

Continuous PM_{10} samplers provide 24-hour concentration measurements every day. During sampling, ambient air passes through an inlet designed to pass only particles smaller than 10 microns in diameter. After exiting the inlet, the sample stream is sent through a mass transducer to determine instantaneous and total flow. Particulate in the sample stream passes through a Teflon-coated glass fiber filter. This filter is weighed every two seconds. The difference between the current filter weight and the previous weight gives the total mass of the collected particulate for that period. The mass concentration is computed by dividing the total mass gained by the flow rate. Data is stored locally on redundant on site data acquisition

systems and recovered hourly by the DAQA automated central data acquisition system.

- **Particulate Matter 2.5 microns in size ($PM_{2.5}$)**

All $PM_{2.5}$ samplers operated by SC DHEC are designated FRM samplers. All manual samplers are operated per the requirements set forth in 40 CFR §50, Appendix L. Samples are collected on 46.2 mm PTFE filters over a 24-hour sampling period. Air flow through the filter is maintained at 16.7 liters per minute. The flow rate must not vary more than +/-5% for five minutes over a 24-sample period at actual ambient temperature and pressure. Samples should be retrieved within 96 hours of the end of the sample run and should be kept cool (4°C or cooler) during transit to meet the thirty-day limit for final weighing.

The PTFE filters are equilibrated and weighed before and after the sample run for a minimum of 24 hours at a controlled atmosphere of 20-23°C mean temperature and 30-40% mean relative humidity. Filters are used within thirty days of initial weighing. Filters must be re-weighed within thirty days of the end of the sample run if kept at 4°C or cooler. The gain in weight in relation to the volume of air sampled is calculated in $\mu g/m^3$.

Continuous $PM_{2.5}$ samplers provide 24-hour measurements every day for AQI reporting. During sampling, ambient air passes through an inlet designed to pass only particles smaller than 2.5 microns in diameter. After exiting the inlet, the sample stream is sent through a mass transducer to determine instantaneous and total flow. Particulate in the sample stream passes through a Teflon-coated glass fiber filter. This filter is weighed every two seconds. The difference between the current filter weight and the previous weight gives the total mass of the collected particulate for that period. The mass concentration is computed by dividing the total mass gained by the flow rate. Data is stored locally on redundant data acquisition systems and recovered hourly by the DAQA automated central data acquisition system.

(c) $PM_{2.5}$ Speciation sampling and analysis

In addition to operating $PM_{2.5}$ samplers that allow measurement of only $PM_{2.5}$ mass concentration, SC DHEC also operates $PM_{2.5}$ speciation samplers that collect samples that are analyzed to determine the chemical makeup of $PM_{2.5}$. Samples are collected on a set of three cartridges over a 24-hour sampling period. The individual cartridges contain denuders and filters designed to efficiently capture the major components of $PM_{2.5}$.

After collection, the samples are shipped in ice chests to the EPA contract laboratory for analysis. At the laboratory the samples are analyzed using thermal optical analysis (for Carbon), ion chromatography and x-ray fluorescence (for metals) to determine the presence and concentration of specific compounds. Sample results are stored in AQS.

- Sulfur dioxide

Instruments used to continuously monitor sulfur dioxide levels in the atmosphere employ the UV fluorescence method. The continuous data output from the instrument is stored locally on redundant data acquisition systems and recovered hourly by the DAQA automated central data acquisition system.

Calibration of these instruments is done dynamically using EPA protocol gas mixtures containing a known concentration of sulfur dioxide in nitrogen. This gas is diluted to give varying known concentrations of sulfur dioxide. These known concentrations are supplied to the instrument, which is adjusted so that the instrument output corresponds with the specific concentrations. Calibration curves are prepared for each instrument and each data point is automatically compared to this curve before entry into the data acquisition system.

- **Carbon Monoxide**

Continuous monitoring for carbon monoxide is performed by use of the non-dispersive infrared correlation method. Data is stored locally on redundant data acquisition systems and recovered hourly by the DAQA automated central data acquisition system.

Calibration of the instrument is done dynamically using EPA Protocol gas mixtures containing a known concentration of carbon monoxide in air. The gas is diluted to give

varying known concentrations of carbon monoxide. These known concentrations are supplied to the instrument, which is adjusted so that the instrument output corresponds with the specific concentrations. Calibration curves are prepared for each instrument and each data point is automatically compared to this curve before entry into the data acquisition system.

- **Ozone**

Ozone is monitored using the UV photometry method. The continuous data output from the instrument is stored locally on redundant data acquisition systems and recovered hourly by the DAQA automated central data acquisition system.

Monitors are routinely calibrated using portable ozone transfer standards. Calibration curves are prepared for each instrument and each data point is automatically compared to this curve before entry into the data acquisition system.

- **Nitrogen Dioxide**

The chemiluminescence and UV methods are used in monitoring the nitrogen dioxide level in the ambient air. The continuous data output from the instrument is stored locally on redundant data acquisition systems and recovered hourly by the DAQA automated central data acquisition system.

Calibration of the instrument is done dynamically using EPA Protocol gas mixtures containing a known concentration of nitric oxide in nitrogen. The gas is diluted to give varying known concentrations of nitric oxide. An ozone generator and converter are used to convert NO to NO_2. These known concentrations are supplied to the instrument, which is adjusted so that the instrument output corresponds with the specific concentrations. Calibration curves are prepared for each instrument and each data point is automatically compared to this curve before entry into the data acquisition system.

- Lead

Lead concentrations are determined from the analysis of total suspended particulate collected using high volume particulate samplers as described in 40 CFR §50 Appendix G. Particulate samples are acid extracted to dissolve the metals. The lead content is determined using Inductively Coupled Plasma (ICP) spectrophotometry.

Sampling Frequency

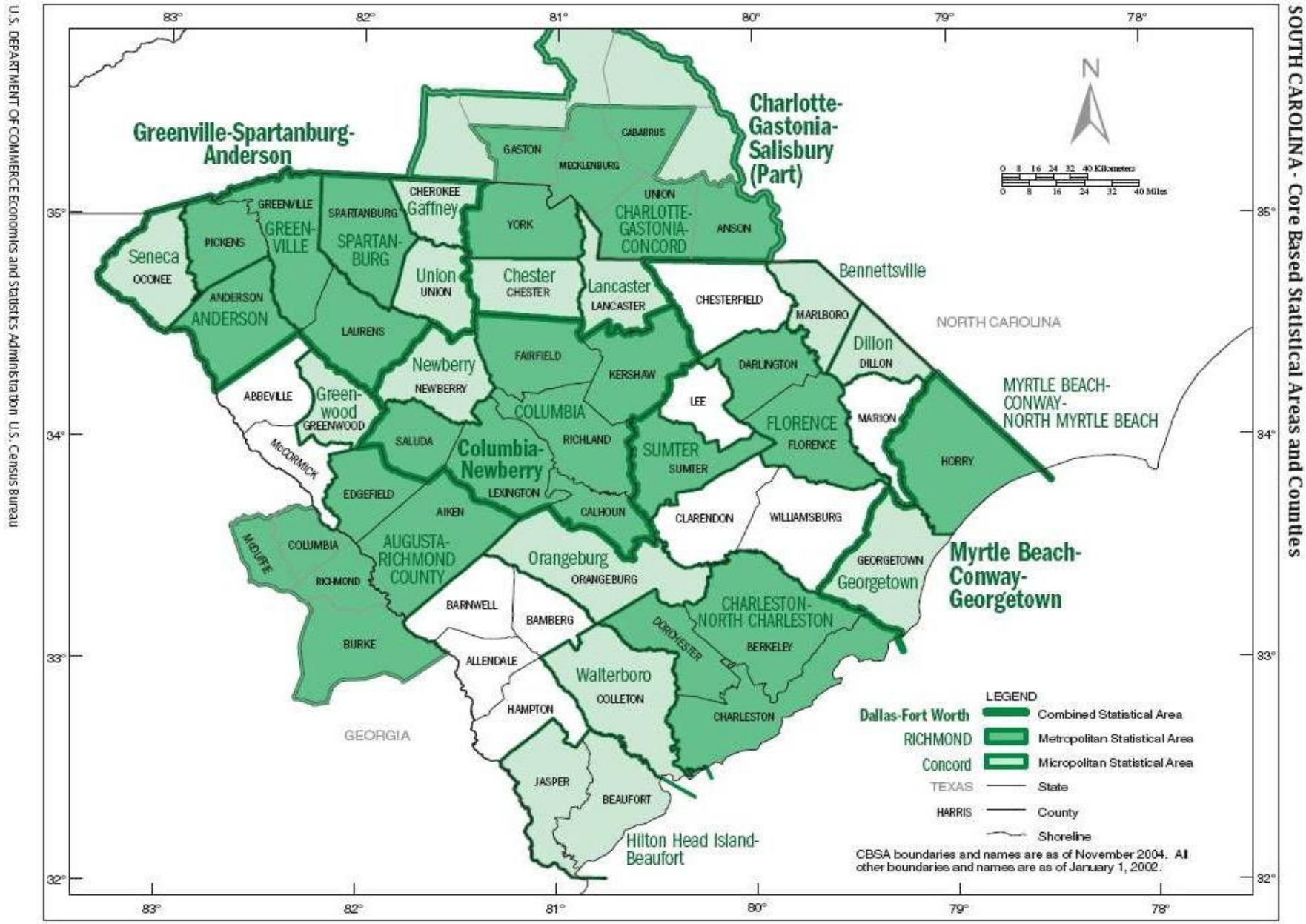
Measurements of the parameters related to air quality are performed using sampling and continuous monitoring. Sampling frequency is the indicator of how often a measurement is made and reported.

Sampling typically involves collection of a sample over a period (typically 24 hours, midnight to midnight) and delivery of the sample to the laboratory for preparation and analysis. Samples are collected every day (1:1), every third day (1:3), every sixth day (1:6) and for some projects, every twelfth day (1:12) depending on the Data Quality Objectives necessary for the project. Results of the analysis are reported as averages for the period. The EPA publishes 1:3 and 1:6 day sampling schedules used nationwide and by the South Carolina ambient monitoring network.[2]

Monitoring typically uses on-site analyzers that continuously sample the air and measure the pollutant of interest. Results of the analysis are reported as hourly averages.

Changes for 2008

Any planned changes in parameters monitored, configuration and operation at the site planned for 2008 are described here and summarized in the list following this section. Unless otherwise indicated, changes at a site, including the beginning of new monitoring activity, will be effective January 1, 2008. Ozone monitoring for 2008 at new or special project sites may start at the beginning of the ozone monitoring season (April-October.)



South Carolina Core Based Statistical Areas and Counties

Network Summaries

Air Monitoring Stations																	
Region	Sites	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP/Lead	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Mercury	Acid Rain	MET
Greenville-Spartanburg-Anderson CSA	10	5	4	2	1	1	6	1	1	1	1	1	0	0	0	1	3
Columbia CSA	8	5	1	0	4	0	3	2	0	0	1	1	2	2	2	2	4
Charlotte-Gastonia-Salisbury CSA	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	
Myrtle Beach-Conway-Georgetown CSA	3	1	0	0	2	0	1	0	0	0	0	0	0	0	0	0	1
Augusta-Richmond County MSA	4	2	1	0	0	0	3	0	1	0	0	0	0	0	0	0	0
Charleston-North Charleston MSA	5	4	2	2	1	0	2	1	1	1	0	1	0	0	0	0	1
Florence MSA	3	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Rest of State	4	2	1	1	2	1	3	0	0	0	0	0	0	0	0	1	2
TOTALS	38	20	10	5	10	2	20	4	3	2	2	3	2	2	2	5	4

$PM_{2.5}$ Sites

Suitable for comparison to the $PM_{2.5}$ National Ambient Air Quality Standards

Sites using Federal Reference Method	Site suitable for comparison to annual standard?	Site suitable for comparison to the 24-Hour standard?
Greenville CHD	Yes	Yes
Taylors	Yes	Yes
West View	Yes	Yes
Long Creek	Yes	Yes
Chesterfield	Yes	Yes
Sneed	Yes	Yes
Howard High #2	TBD	TBD
FAA	Yes	Yes
CPW	Yes	Yes
Parklane	Yes	Yes
Irmo	Yes	Yes
Bates House	Yes	Yes
Sandhill	Yes	Yes
Aiken Special Study	Yes*	Yes*
New Greenville	Yes*	Yes*
New Spartanburg	Yes*	Yes*
New Florence	Yes*	Yes*
	Yes*	Yes*
* Sites not yet established but expected to be suitable for comparison to primary and secondary annual and 24-hour standards.		

Summary of 2008 Network Changes

Anderson MSA
Establish required maximum concentration ozone site in northeast Anderson Co.

Establish Special Purpose population oriented area of expected maximum concentration continuous $PM_{2.5}$ site in Anderson.

Greenville MSA
Establish required maximum concentration ozone site in northeast Greenville Co.

Establish required ozone site monitoring population exposure in southeast Greenville Co.

Discontinue SO_2 and TSP/Lead monitoring at Greenville CHD (45-045-0008).

Establish SPM PM_{10} and $PM_{2.5}$ STN protocol Speciation sampling at Greenville CHD (45-045-0008).

Discontinue CO, NO_2 and SO_2 special study monitoring at Taylors (45-045-0009).

Discontinue PM_{10} and $PM_{2.5}$ monitoring at Monaghan Mill (45-045-0010).

Discontinue TSP/Lead monitoring at Greer (45-045-2002).

Establish downtown SPM Greenville $PM_{2.5}$ site which better meets siting criteria. Potential replacement for Greenville CHD.

Spartanburg MSA
Establish Special Purpose population oriented area of expected maximum concentration $PM_{2.5}$ FRM site in Spartanburg. Eventual replacement for West View (45-083-0010).

Establish required collocated $PM_{2.5}$ continuous monitoring at SPM site.

Discontinue PM_{10} and TSP/Lead monitoring at Spartanburg City Hall (45-083-0001).

Charlotte-Gastonia-Concord MSA
Discontinue PM_{10} and TSP/Lead at Rock Hill (45-091-0005).

Discontinue ozone monitoring at Chester (045-023-0002).

Augusta -Richmond County MSA
Establish new Aiken/North Augusta ozone site. Potential replacement for Trenton (45-037-0001).

Discontinue PM_{10} monitoring at Jackson (45-003-0003).

Columbia MSA
Add SPM $PM_{2.5}$ at Sandhill (45-079-1001).

Discontinue CO monitoring at State Hospital (45-079-0020).

Discontinue PM_{10} monitoring at Olympia (45-079-0018).

Discontinue SO_2, NO_2, PM_{10} and TSP/Lead monitoring at Parklane (45-079-0007).

Discontinue SO_2 and PM_{10} monitoring at DHEC (45-079-1003).

Discontinue NO_2 and TSP/Lead at Congaree Bluff (45-079-0021).

Replace TSP with PM_{10} at Cayce Fire Station (45-063-1002).

Sumter MSA
Discontinue TSP/Lead at Sumter (45-085-0001).

Florence MSA

Establish Special Purpose population oriented area of expected maximum concentration $PM_{2.5}$ FRM site in Florence. Eventual replacement for Sneed (45-041-0002).

Establish required collocated $PM_{2.5}$ continuous monitoring at SPM site.

Discontinue TSP/Lead at H L Sneed Middle School (45-041-0002).

Myrtle Beach-Conway- North Myrtle Beach MSA
Discontinue $PM_{2.5}$ and TSP/Lead at Myrtle Beach (45-051-0002).

Charleston-North Charleston MSA
Discontinue SO_2, NO_2 and TSP/Lead monitoring at Jenkins Avenue Fire Station (45-019-0003).

Establish required MSA $PM_{2.5}$ continuous monitoring at Jenkins Avenue Fire Station (45-019-0003).

Discontinue PM_{10} and TSP/Lead at Cape Romain (45-019-0046).

Investigate location for required continuous $PM_{2.5}$ and collocated FRM $PM_{2.5}$ at max population exposure site to replace one or both CPW (45-019-0049) and FAA (45-019-0048).

Georgetown Micropolitan Statistical Area
Discontinue TSP/Lead and SO_2 monitoring at Georgetown CMS (45-043-0006).

Investigate and evaluate alternative methods of continuous particulate monitoring for Georgetown CMS (45-043-0006).

Establish SPM $PM_{2.5}$, at Howard High (45-043-0010). Work with property owners to reduce potential local impacts.

Discontinue TSP/Lead at Maryville (45-043-0007).

Discontinue TSP/Lead at Howard High (45-043-0010),).

Remainder of State
Establish SPM ozone in northeast Horry Co. Potentially one of a rotating monitoring plan for areas of continuing interest.

Investigate rotation of FRM $PM_{2.5}$ to monitor concentration trends in smaller cities starting 2009.

Establish SPM TSP at Chesterfield (45-025-001).

Discontinue ozone monitoring at Cowpens (45-021-0002).

Discontinue ozone monitoring at Delta (45-087-0001).

Discontinue ozone monitoring at Indiantown (045-089-0001).

Discontinue NO_2, SO_2, Ozone and PM_{10} monitoring at Barnwell (45-011-0001).

Discontinue TSP/Lead and $PM_{2.5}$ at Beaufort (45-013-0007).

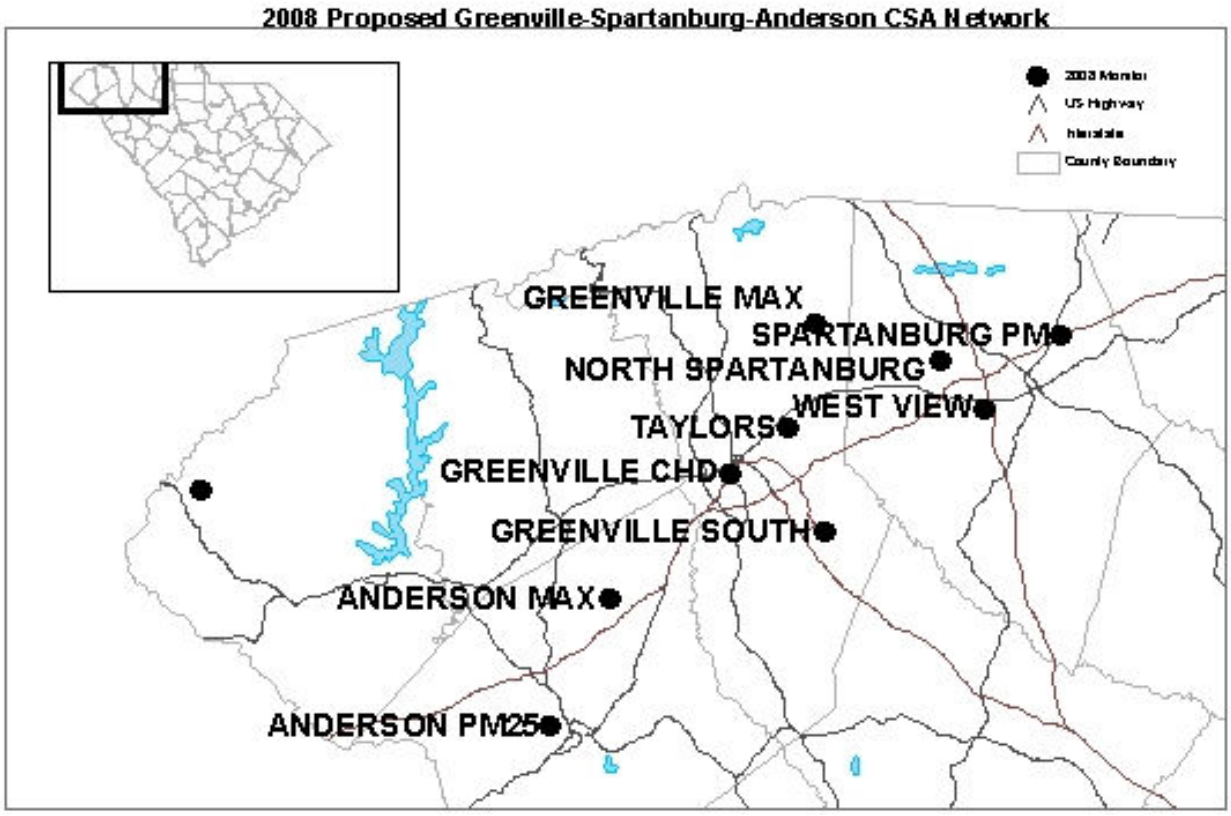
Discontinue TSP/Lead at Greenwood (45-047-0001).

Discontinue TSP/Lead at Premier Road (45-047-0002).

Discontinue FRM PM2.5 at Merrywood (45-047-0003).

Site Descriptions

Greenville-Spartanburg-Anderson CSA



AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP/Lead	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Mercury	Acid Rain	MET
45-045-0008	Greenville County Health Department	●	O	O	O	O			●	●	O	O					O
45-045-0009	Taylors	●		O													O
45-073-0001	Long Creek	●	O				●	O								O	O
45-077-0002	Clemson CMS		O				●										
45-083-0009	North Spartanburg Fire Station #2						●										
45-083-0010	West View	●															
Not Available	Anderson $PM_{2.5}$		O														
Not Available	Anderson County O_3						●										
Not Available	North East Greenville County						●										
Not Available	Southeast Greenville County						●										
	TOTAL	5	4	2	1	1	6	1	1	1	1	1	0	0	0	1	3

O SPM
● SLAMS

Greenville County Health Department
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Greenville MSA
AQS Site ID: 45-045-0008
Location: 91 Wakefield Street, Greenville, SC, 29601
County: Greenville
Coordinates: +34.838814, -82.402918
Date Established: April 6, 1989
Site Evaluation: The most recent site evaluation was conducted on 03/30/2005.

This monitoring site is located on the grounds of the Greenville County Health Department. The sample inlets are 16.8 meters from the nearest road. The most recent site evaluation was conducted on 03/30/2005.

The Greenville County Health Department site is located approximately 2 km (1 mile) south of downtown Greenville. The area represented by the site is dominated by area sources. The Greenville Health Department site has samplers for $PM_{2.5}$ and TSP. This site also has had continuous monitors for NO_2, SO_2 and CO, Carbon (LAC), and $PM_{2.5}$. This site was one of three sites representing the Greenville-Spartanburg Monitoring Planning Area for $PM_{2.5}$ Several intensive monitoring projects have demonstrated that the site is representative of $PM_{2.5}$ concentrations on a neighborhood or larger scale.

The Department plans to establish an additional site in the downtown Greenville area which may better meet suggested $PM_{2.5}$ siting criteria. Both sites will be operated concurrently for at least one year to allow comparison of data collected at both locations. If the two monitors are comparable, the Department may recommend to EPA relocation of some or all of the monitoring activity to the more appropriate location.

The criteria pollutants NO_2, and CO will continue to be monitored at this location to provide fine particulate and ozone precursor data and data to support modeling. Facilities wishing to make modifications or build new plants are required to model for criteria pollutants, and the Greenville data will provide a conservative estimate of ambient concentrations.

Changes for 2008

The monitoring of SO_2 established as part of the Greenville $PM_{2.5}$ special studies will be discontinued at the end of 2007. The Greenville area speciation sampling will be relocated to Greenville CHD January 1 2008. Concurrent speciation sampling will be conducted at Greenville CHD and Taylors in 1st Quarter and 3rd Quarter (typically lowest and highest $PM_{2.5}$ concentration, respectively)

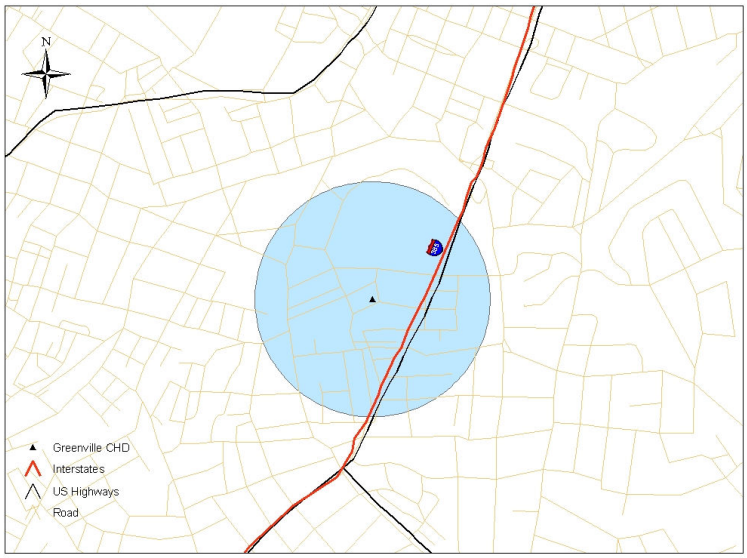
To support the transition of the ambient network particulate analysis from Total Suspended Particulate (TSP) to the inhaleable fractions (PM_{10} and $PM_{2.5}$), $PM_{2.5}$ speciation and PM_{10} sampling will be established for 2008 to represent urban exposure. The PM_{10} will serve as the required SLAMS for the Greenville MSA. The collocated TSP precision sampler will be relocated to the rural TSP site in Chesterfield.

Monitors:

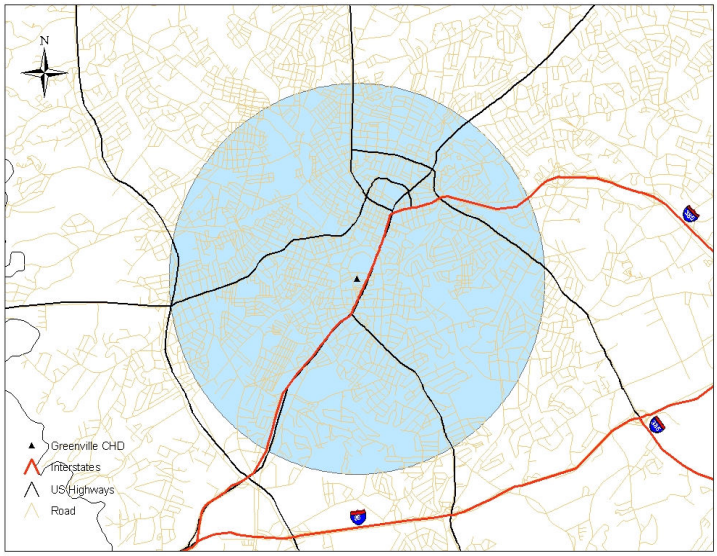
Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure / Welfare Related Impacts	SLAMS	4.0	FRM Gravimetric	1:1
$PM_{2.5}$	Neighbor hood	Population Exposure / Welfare Related Impacts	SPM	4.5	TEOM-FDMS (includes measurement of volatile $PM_{2.5}$)	Continuous
$PM_{2.5}$ Speciation	Neighbor hood	Special Study-Metals	SPM	4.5(est)	STN Protocol	1:6
PM_{10}	Neighbor hood	Special Study-Metals	SPM	4.0(est)	FRM High Volume collection ICP/MS	1:6
TSP	Neighbor hood	Special Study-Metals	SPM	4.0(est)	FRM High Volume collection ICP	1:6
Nitrogen Dioxide	Neighbor hood	Population Exposure	SLAMS	4.0	FRM Chemiluminescence	Continuous
Carbon Monoxide	Middle	Welfare Related Impacts	SLAMS	4.0	FRM Nondispersive Infrared Photometry	Continuous
Sulfate	Neighbor hood	Population Exposure	SPM	4.5		Continuous
Black Carbon	Neighbor hood	Welfare Related Impacts	SPM	4.5	Optical absorption	Continuous
Meteorology		Local Conditions	SPM	10	Instruments for temperature, wind speed, wind direction, pressure,	Continuous

Representative Area:

Middle



Neighborhood



Taylors
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Greenville MSA
AQS Site ID: 45-045-0009
Location: 405 Brushy Creek Road
County: Greenville
Coordinates: +34.899141, -82.313070
Date Established: May 1, 1999
Site Evaluation: The most recent site inspection was conducted on 04/07/2005

This monitoring site is located in the town of Taylors.

The monitoring site is in a residential area of Taylors on the grounds of a city fire station. The sample inlets are 16.8 meters from the nearest road. The site is approximately 6 kilometers northeast of the Greenville Health Department monitoring site. The area represented by this sampler is dominated by area sources. The Taylors site was originally established as the location of one of two $PM_{2.5}$ Core samplers representing the Greenville-Spartanburg Monitoring Planning Area. The Taylors site has an FRM $PM_{2.5}$, a STN protocol $PM_{2.5}$ speciation sampler and a collocated $PM_{2.5}$ FRM used for determination of method precision. In addition to the samplers, the site has continuous monitors for Carbon (LAC), meteorology, and $PM_{2.5}$.

This location meets all siting requirements but concerns have been expressed about potential impact from local sources. As part of the continuing evaluation of the monitoring network, the Department will evaluate possible relocation of this site.

Changes for 2008

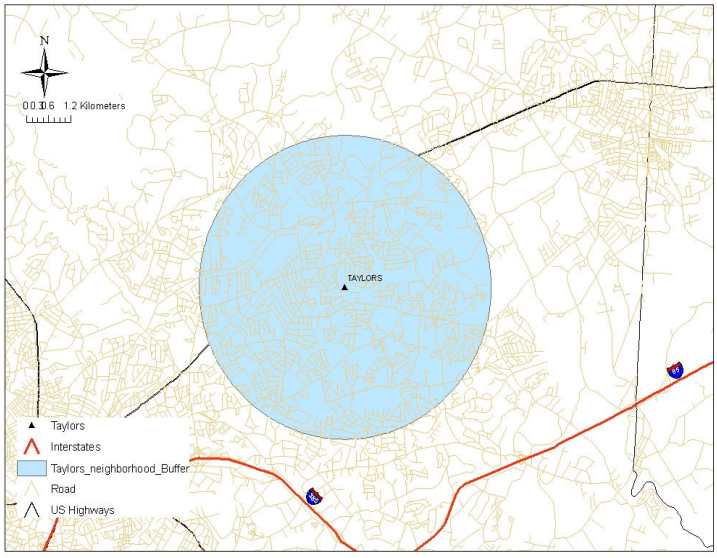
The monitoring of CO, NO_2, $PM_{2.5}$, SO2 and LAC established as part of the Greenville $PM_{2.5}$ special studies will be discontinued at the end of 2007. The Greenville area speciation sampling will be relocated to Greenville CHD January 1, 2008. Concurrent sampling at Greenville CHD and Taylors will be conducted in 1st Quarter and 3rd Quarter (typically lowest and highest $PM_{2.5}$ concentration, respectively).

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS	4.4	FRM Gravimetric	1:1
Collocated $PM_{2.5}$	Neighbor hood	Quality Assurance	SLAMS	4.4	FRM Gravimetric	1:6
Speciated $PM_{2.5}$	Neighbor hood	Population Exposure	Transition study Q1 and Q3 2008	4.4	STN Protocol	1:6
Meteorology		Local conditions	SPM	10	Instruments for wind speed and wind direction	Continuous

Representative Area:

Neighborhood



Long Creek
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA
AQS Site ID: 45-073-0001
Location: Round Mt. Fire Tower
County: Oconee
Coordinates: +34.805261, -83.237700
Date Established: August 1, 1983
Site Evaluation: The most recent site inspection was conducted on 02/18/2005.

The Long Creek monitoring site is located on Round Mountain in northwest Oconee County. The sample inlets are 11.0 meters from the nearest road.

The Long Creek site was established as part of the Southern Oxidant Study. It provides a unique vantage for monitoring the impacts of transported pollutants. The area represented by this sampler is dominated by area sources. Long Creek has samplers for $PM_{2.5}$, precipitation and acid rain and has continuous monitors for O_3, $PM_{2.5}$, and SO_2.

Due to the importance of measuring region-wide SO_2, $PM_{2.5}$ and ozone concentrations, the unique location and collocated monitoring activity, the Department has determined that current monitoring at this site should be continued.

Changes for 2008

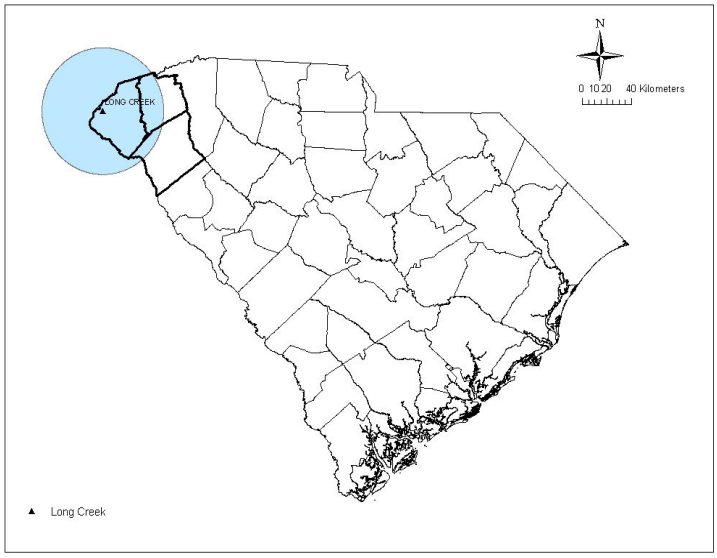
No changes are planned for 2008

Monitors:

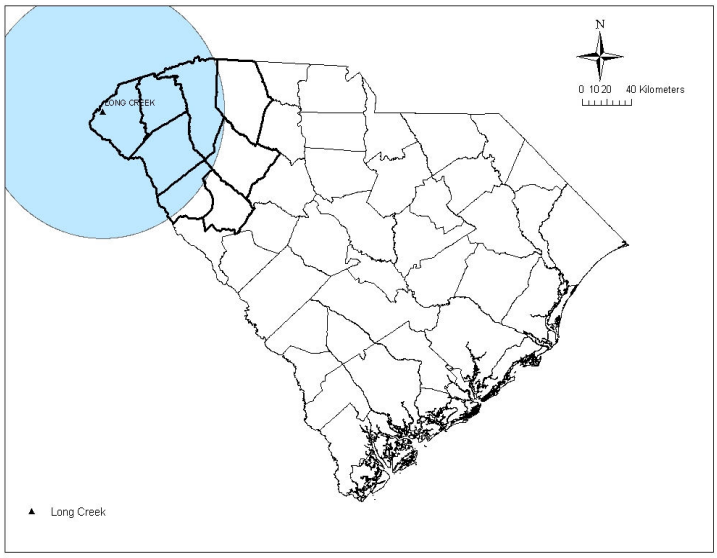
Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Urban	Regional Transport / Background	SLAMS	2.6	FRM Gravimetric	1:3
$PM_{2.5}$	Urban	Regional Transport Background	SPM	4.3	TEOM 50 deg C	Continuous
Ozone	Regional	Regional Transport	SLAMS	4.3	FEM Ultraviolet Photometry	Continuous
Sulfur Dioxide	Regional	Regional Transport	SPM	4.3	FEM Pulsed fluorescent	Continuous
Acid Rain	Neighbor hood	Trends	SPM	1.5	IC	Weekly
Meteorology	Neighbor hood	Local Conditions	SPM	1.5	Tipping bucket	Continuous

Representative Area:

Urban



Regional



Clemson CMS
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Greenville MSA
AQS Site ID: 45-077-0002
Location: 106 Hope Well Road
County: Pickens
Coordinates: +34.655221, -82.838653
Date Established: July 14, 1979
Site Evaluation: The most recent site evaluation was conducted on 03/18/2003.

The Clemson Continuous Monitoring Site(CMS) site is located in on the grounds of Clemson University near the western border of Pickens County. The sample inlets are 27.4 meters from the nearest road. This monitor was intended to document ozone concentrations upwind of the Greenville-Spartanburg urbanized area. The area represented by this monitor is dominated by area sources.

Changes for 2008

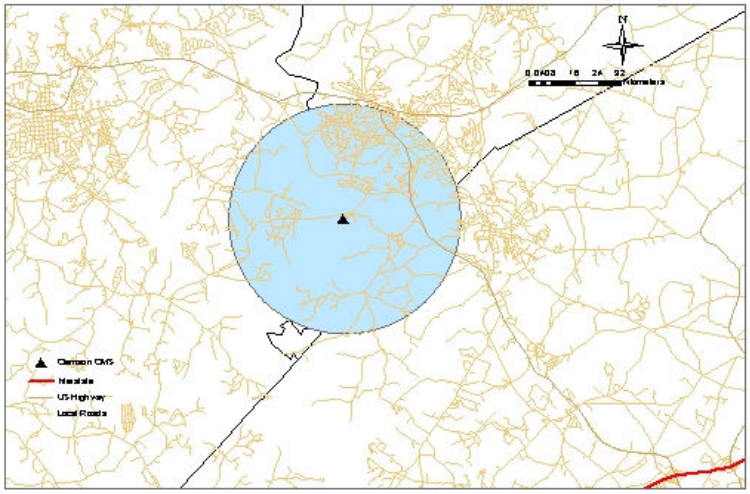
The monitoring at Clemson will be maintained through the 2008 ozone season to support the establishment of the Anderson County ozone site and as part of the Greenville MSA Ozone Study.

Monitors:

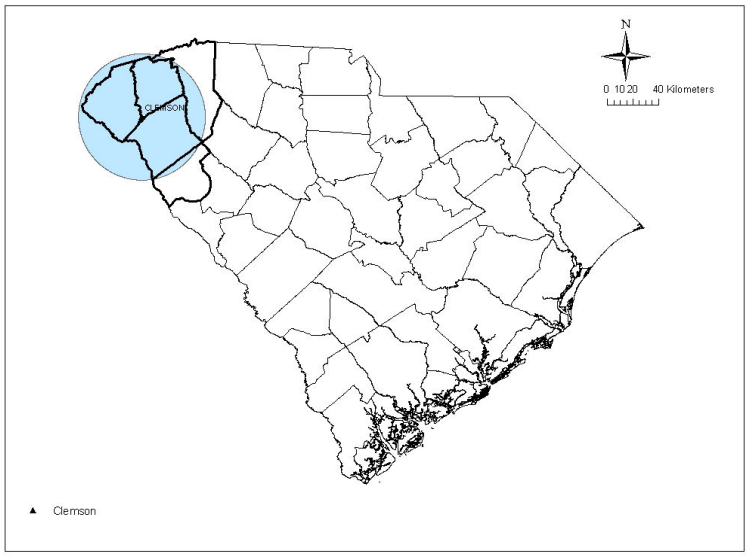
Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Background	SPM	3.0	TEOM	Continuous
Ozone	Urban	Upwind background	SLAMS	3.0	FEM Ultraviolet Photometry	Continuous

Representative Area:

Neighborhood



Urban



North Spartanburg Fire Station #2
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Spartanburg MSA
AQS Site ID: 45-083-0009
Location: 1556 John Dodd Road
County: Spartanburg
Coordinates: +34.988706, -82.075802
Date Established: April 4, 1990
Site Evaluation: The most recent site inspection was conducted on 06/08/2006.

This monitoring site is located in rural Spartanburg County, northwest of the city of Spartanburg. The sample inlets are 85 meters from the nearest road

This site was established as a maximum ozone concentration monitor for the Greenville-Spartanburg-Anderson urban area on 04/04/1990. North Spartanburg is sited to represent urban scale concentrations of ozone. This monitor is designated SLAMS and is fulfills the requirement for a maximum concentration site for the Spartanburg MSA. The area represented by this monitor is dominated by area sources.

Changes for 2008

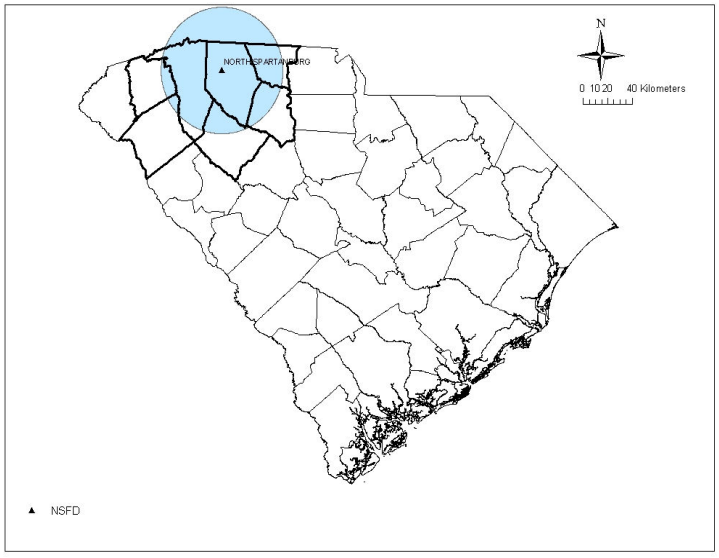
No changes are planned in the monitoring. Improvements to the immediate area around the site will be pursued to improve exposure and security.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Max ozone concentration	SLAMS	3.6	FEM Ultraviolet Photometry	Continuous

Representative Area:

Urban



West View
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Spartanburg MSA
AQS Site ID: 45-083-0010
Location: 4200 Copper Line Road
County: Spartanburg
Coordinates: +34.926839, -82.005211
Date Established: November 10, 1998
Site Evaluation: The most recent site inspection was conducted on 03/29/2006.

The West View site is located in Spartanburg County at the West View Elementary School, west of the City of Spartanburg. The site was established as a $PM_{2.5}$ population exposure sampler on 11/10/1998 as one of the two Core samplers placed to represent the Greenville-Spartanburg Monitoring Planning Area. West View was sited to represent neighborhood scale. The area represented by this sampler is dominated by area sources. The sample inlets are 99 meters from the nearest road.

Redefinition of MSA boundaries, the requirement for a maximum exposure/population oriented site and requirement for collocation of continuous monitoring for reporting to the public necessitate relocation of this monitor.

Changes for 2008

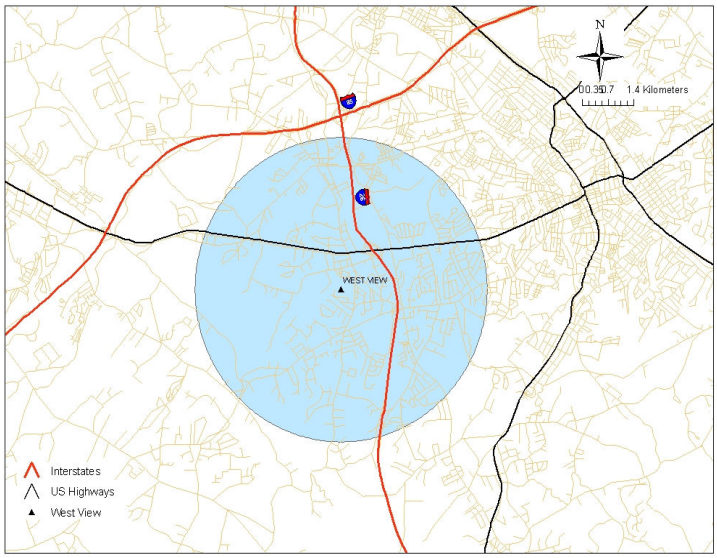
A new monitoring site appropriate for the objectives and monitoring requirements will be established in Spartanburg. West View will continue concurrent operation for no less than one year to permit evaluation of concentration difference and variability between it and the new site and preserve a continuous data record for Spartanburg.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS	2.6	Gravimetric	1:1

Representative Area:

Neighborhood



Anderson $PM_{2.5}$
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Anderson MSA
AQS Site ID: 045-007-xxxx
Location:
County: Anderson
Coordinates:
Date Established: January 1, 2008
Site Evaluation:

No picture available.

While there are no minimum requirements for $PM_{2.5}$ monitoring in the Anderson MSA, the Department will place a SPM continuous $PM_{2.5}$ monitor in or near the City of Anderson to determine population exposure to fine particulate.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SPM	>2 (est)	TEOM	Continuous

Anderson County O_3
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA/ Anderson MSA
AQS Site ID: 45-007-xxxx
Location: Northeast Anderson County
County: Anderson
Coordinates:
Date Established: January 1, 2008
Site Evaluation:

No picture available.

This monitor will be established to satisfy the minimum requirements for ozone monitoring in the Anderson MSA. This monitor will be established northeast of the City of Anderson to in the area expected to have the maximum ozone concentrations for the MSA.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Max ozone concentration	SLAMS	4(est)	FEM Ultraviolet Photometry	Continuous

Northeast Greenville County
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Greenville MSA
AQS Site ID: 45-045-xxxx
Location:
County: Greenville
Coordinates:
Date Established: January 1, 2008
Site Evaluation:

No picture available.

This site will serve as one of the two required ozone monitors in the Greenville MSA. It is expected that this site will represent the maximum ozone concentration for the Greenville MSA.

This monitor will be designated SLAMS but will be part of a special study that will be conducted throughout the MSA with the goal of better understanding the spatial variability of ozone concentrations in the area.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Max ozone concentration	SLAMS		FEM Ultraviolet Photometry	Continuous

Southeast Greenville County
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Greenville MSA
AQS Site ID: 45-045-xxxx
Location:
County: Greenville
Coordinates:
Date Established: January 1, 2008
Site Evaluation:

No picture available.

This site will serve as one of the two required ozone monitors in the Greenville MSA. It is expected that this site will represent the population exposure in a growing area of the MSA in the Simpsonville- Fountain Inn area.

This monitor will be designated SLAMS but will be part of a special study that will be conducted throughout the MSA with the goal of better understanding the spatial variability of ozone concentrations in the area.

Monitors:

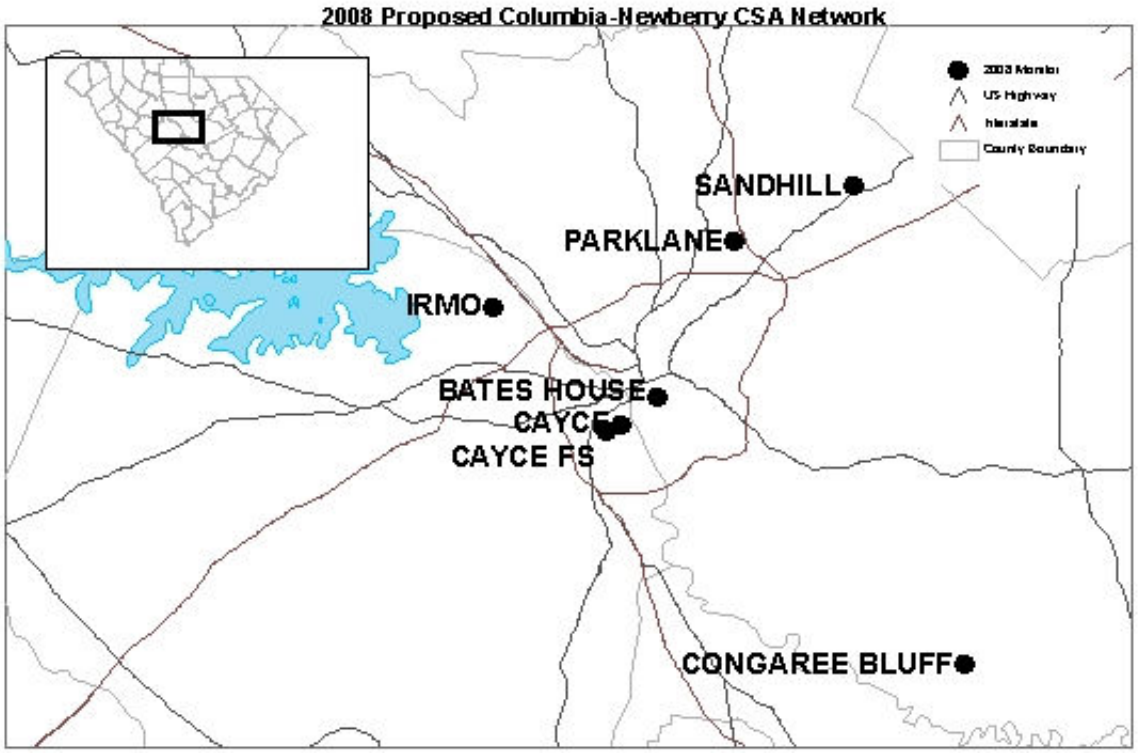
Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Population Exposure	SLAMS	3(est)	FEM Ultraviolet Photometry	Continuous

Greenville MSA Ozone Study
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Greenville MSA
County: Greenville
Date Established: January 1, 2008

In order to better understand the spatial distribution of ozone concentrations in the upstate, data from existing monitoring sites (Clemson and North Spartanburg) and planned required MSA monitors (Anderson County, Northeast and Southeast Greenville county) will be supplemented by two additional sites ,most likely in northwest Greenville and central Pickens county for the 2008 Ozone season. The SPM monitors will be operated for no more than two ozone seasons with the primary goal of identifying the most appropriate sites for the required MSA SLAMS.

The Department will develop a project plan for the monitoring and data analysis activity to better define the scope of the study prior to implementation. All data will be reported to AirNOW for generation of area Air Quality maps and to support air quality forecasting.

Columbia-Newberry CSA



AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP/Lead	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Mercury	Acid Rain	MET
45-063-0008	Irmo	●	O					O			O	O	O				
45-063-0009	Cayce CMS				O												O
45-063-1002	Cayce Fire Station				O												
45-079-0007	Parklane	O					●							O		O	O
45-079-0019	Bates House (USC)	●			●												
45-079-0020	State Hospital												O	O			
45-079-0021	Congaree Bluff						O	O							O	O	O
45-079-1001	Sandhill	O					●										O
	TOTAL	5	1	0	4	0	3	2	0	0	1	1	2	2	2	2	4

O SPM
● SLAMS

Irmo
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-063-0008
Location: 200 Leisure Lane
County: Lexington
Coordinates: +34.051017, -81.154950
Date Established: 04/07/1989
Site Evaluation: The most recent site inspection was conducted on 02/25/2005.

The Irmo site is located in Lexington County in the town of Irmo. The sample inlets are 43.4 meters from the nearest road. The area represented by the sampler is dominated by area sources. The Irmo site has samplers for $PM_{2.5}$, and continuous monitors for SO_2, sulfate, black carbon and $PM_{2.5}$. Additionally, this site has a sampler collecting carbonyl samples on a 1:6 schedule.

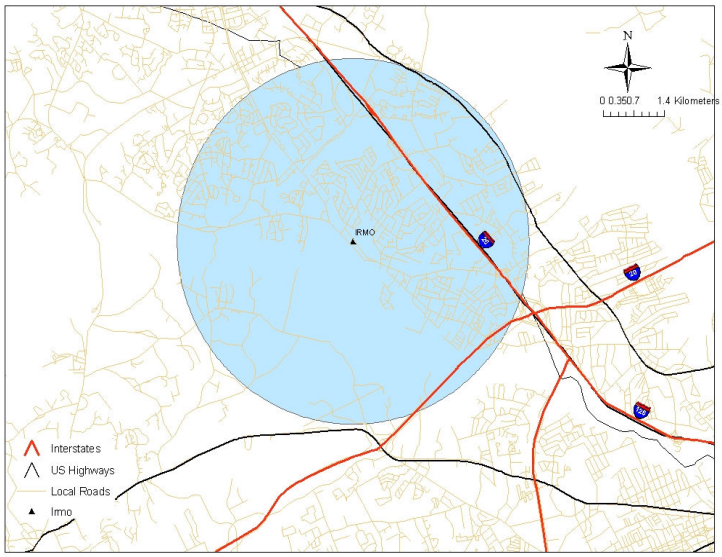
The 2004-2006 $PM_{2.5}$ annual Design Value at this site is higher than the National Ambient Air Quality Standard.

Changes for 2008

Monitoring for Sulfate, Light Absorbing Carbon and Continuous $PM_{2.5}$ begun in 2007 will be continued to support investigation of potential contributors to elevated concentrations in the area. The study may be expanded to explore alternative site locations and confirm the representative scale of monitoring in the area.

Representative Area:

Neighborhood

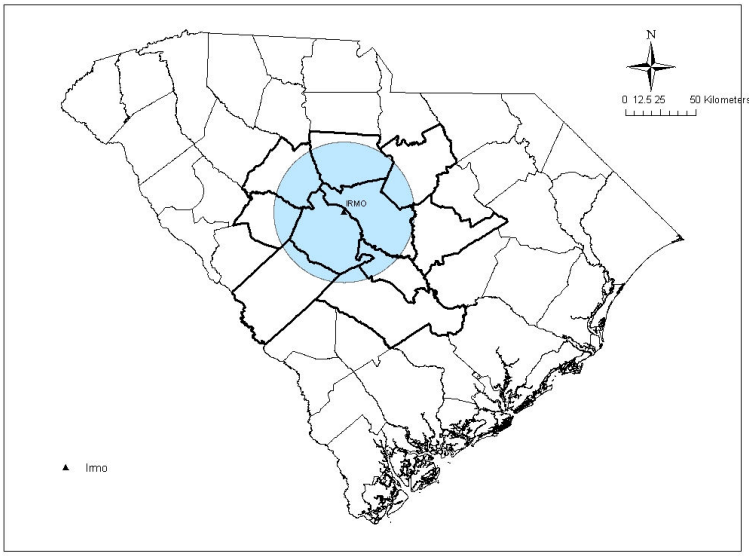


Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS	5.0	FRM Gravimetric	1:1
Continuous $PM_{2.5}$	Neighbor hood	Population Exposure	SPM	4.56	TEOM 30°C	Continuous
SO_2	Neighbor hood	Source Oriented	SPM	3.35	FEM Pulsed fluorescence	Continuous
Sulfate	Neighbor hood	Other	SPM	5.1	Catalytic thermal reduction / Pulsed fluorescence	Continuous
Black Carbon	Neighbor hood	Population Exposure	SPM	4.0	Optical absorption	Continuous
Carbonyls	Neighbor hood	General / Background	SPM	3.9	HPLC Ultraviolet Absorption	1:6

Representative Area:

Urban



Cayce CMS
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-063-0009
Location: 609 Frink Street
County: Lexington
Coordinates: +33.973389, -81.052675
Date Established: 10/26/1991
Site Evaluation: The most recent site inspection was conducted on 05/08/2006.

The Cayce CMS site is located in Lexington County in the city of Cayce. The sample inlets are 4.9 meters from the nearest road. The PM_{10} is a Special Purpose Monitor located in an industrial setting. This site was established as a source oriented monitor in an area where there is a concentration of industrial particulate sources. Cayce CMS is sited to represent microscale concentrations of PM_{10} in an area dominated by point sources and dust reentrained by mobile sources. In addition to PM_{10}, the Cayce CMS site also has monitors for meteorological parameters.

This monitoring at this site provides useful information on the impacts of industrial activities on air quality in the Cayce area. This site has also experienced some of the highest daily average concentrations of PM_{10} in the state in 2006.

Changes for 2008

No changes are planned. Additional special purpose monitoring may be conducted at this site in response to questions raised by local data users investigating improvements in local air quality.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
PM_{10}	Microscale	Source Oriented	SPM	4.3	TEOM	Continuous
Meteorology		Local Conditions	SPM	10	Instruments for precipitation, wind speed and wind direction	Continuous

Representative Area:

Microscale

Cayce Fire Station
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-063-1002
Location: 2 Lavern Jumper Rd.
County: Lexington
Coordinates: +33.969004, -81.065326
Date Established: 06/01/1984
Site Evaluation: The most recent site inspection was conducted on 05/12/2006.

The Cayce Fire Station site is located in Lexington County in the city of Cayce near the municipal offices. This site is on the rooftop of the Cayce Fire Station. The sample inlet is 32 meters from the nearest road.

The site is sited to represent neighborhood scale concentrations. The site is located in an urban and center city. The area represented by this site is dominated by area sources.

This site is used to confirm the scale of the Cayce CMS site and document the particulate impact in nearby more densely populated areas.

Changes for 2008

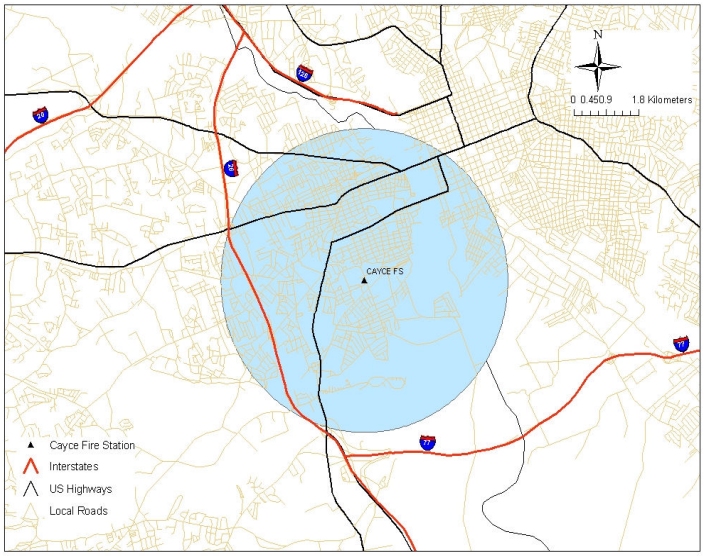
The existing TSP sampler, used as a surrogate for PM_{10}, will be replaced by an FRM High Volume sampler or FEM continuous monitor.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
PM_{10}	Neighborhood	Population Exposure	SPM		FEM Hi-volume SSI or Continuous	1:6 or Continuous

Representative Area:

Neighborhood



Parklane
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-079-0007
Location: 8311 Parklane Rd.
County: Richland
Coordinates: +34.093959, -80.962304
Date Established: 04/03/1980
Site Evaluation: The most recent site inspection was conducted on 03/22/2007.

The Parklane site is located in north central Richland County. The sample inlets are 57 meters from the nearest road. Parklane represents neighborhood and larger scale concentrations. The site is in a suburban setting dominated by area sources. The Parklane site has samplers for, $PM_{2.5}$, acid rain and precipitation and has continuous monitoring for ozone. Additionally, the site serves as a precision site for PM_{10}.

The site was originally placed to provide downwind, edge of the Columbia urban area population exposure measurements. Since it was established, commercial and residential areas have spread further to the northeast. The site also provides a facility for training and equipment evaluation convenient to the Columbia DHEC laboratory

Changes for 2008

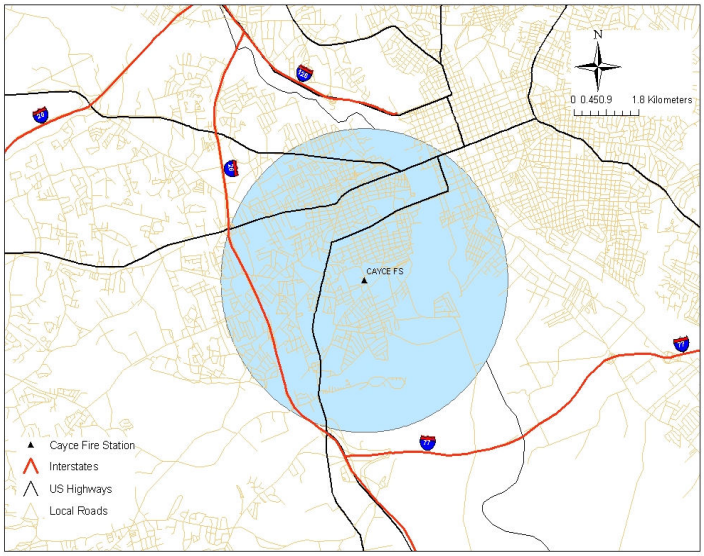
Monitoring for SO_2, NO_2, PM_{10} and TSP will be discontinued at Parklane. $PM_{2.5}$ sampling will be discontinued in December 2008.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population exposure	SPM	5.0	FRM Gravimetric	1:3
Ozone	Neighbor hood	Max ozone concentration	SLAMS	4.42	FEM Ultraviolet Photometry	Continuous
SVOC	Neighbor hood	Population Exposure	SPM	5.0	PUF-GC/MS	1:6
Acid Rain	Neighbor hood	Trends	SPM	1.5	IC	Weekly
Meteorology		Local Conditions	SPM	1.5	Instruments for precipitation	Continuous

Representative Area:

Neighborhood



Bates House (USC)
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-079-0019
Location: 323 S. Bull Street
County: Richland
Coordinates: +33.991509, -81.024141
Date Established: 11/24/1998
Site Evaluation: The most recent site inspection was conducted on 03/17/2003

The sample inlets are 28.8 meters from the nearest road. .

The Bates House (USC) site is located in Richland County within the University of South Carolina-Columbia campus. This site intended to measure neighborhood scale concentrations in the urban and center city. The area represented by this site is dominated by area sources. The Bates House site has samplers for PM_{10}, TSP, and $PM_{2.5}$ .Additionally, this site has collocated precision sampling for $PM_{2.5}$.

A continuous PM_{10} sampler was installed in late 2005 as an element of the USC Particulate Study. The data is intended to provide more detailed information to establish baseline and measurement of potential impacts of a new biomass facility. That project is expected to be concluded in mid 2008
e site has collocated wind measurement equipment (3m)operated by the USC Geography department.

Changes for 2008

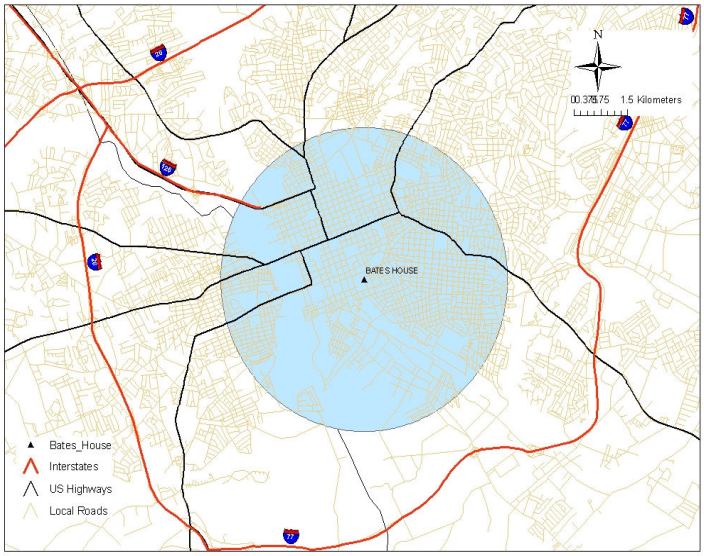
Improvements to the immediate area to improve exposure will be made with the cooperation of the property owner.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population exposure	SLAMS	5.0	Gravimetric	1:1
Collocated $PM_{2.5}$	Neighbor hood	Quality Assurance	SLAMS	2.3	Gravimetric	1:6
PM_{10}	Neighbor hood	Population exposure	SLAMS	2.3	Gravimetric	1:6
PM_{10}	Neighbor hood	Population exposure	Industrial	3.07	TEOM	Continuous

Representative Area:

Neighborhood



State Hospital
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-079-0020
Location: 2100 Bull Street
County: Richland
Coordinates: +34.015494, -81.034179
Date Established: 01/07/1999
Site Evaluation: The most recent site inspection was conducted on 02/09/2006.

The sample inlets are 10.0 meters from the nearest road. .

The State Hospital site is located in Columbia near the intersection of Elmwood Avenue and Bull Street on the grounds of the State Hospital. This site was established on 01/07/1999 as a replacement for the Wardlaw CO site (45-079-0013) to continue measurement of the highest expected concentrations in the area. This site is in an urban area and is dominated by mobile sources. State Hospital also has samplers for carbonyls and Semi Volatile Organic Compounds.

Changes for 2008

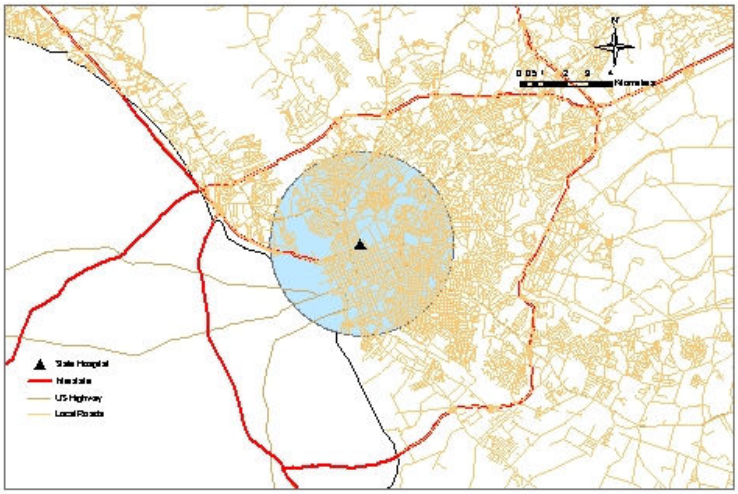
CO monitoring at this site will be discontinued at the end of 2007.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Carbonyls	Neighbor hood	General / Background	SPM	3.9	HPLC Ultraviolet Absorption	1:6
SVOC	Neighbor hood	Population Exposure	SPM	5.0	PUF-GC/MS	1:6

Representative Area:

Neighborhood



Congaree Bluff
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-079-0021
Location: 1850 South Cedar Creek Road
County: Richland
Coordinates: +33.814680, -80.781135
Date Established: 12/27/1999
Site Evaluation: The most recent site inspection was conducted on 04/11/2005.

The sample inlets are 191.7 meters from the nearest road.

The Congaree Bluff site is located in southern Richland County. The site is located in a rural setting within the boundaries of the Congaree National Park. The area represented by this site is dominated by area sources. The Congaree Bluff site site has monitors for, ozone, SO_2, gaseous mercury, mercury deposition, acid rain and precipitation.

The Congaree Bluff monitoring continues a data 1981record begun in 1981 with the establishment of the Congaree Swamp site (45-079-1006). The original site was established in cooperation with the Department of the Interior and the support of the General Assembly to provide long term monitoring in this unique area.

The national park service collects wind data on a collocated 30m wind tower.

Changes for 2008

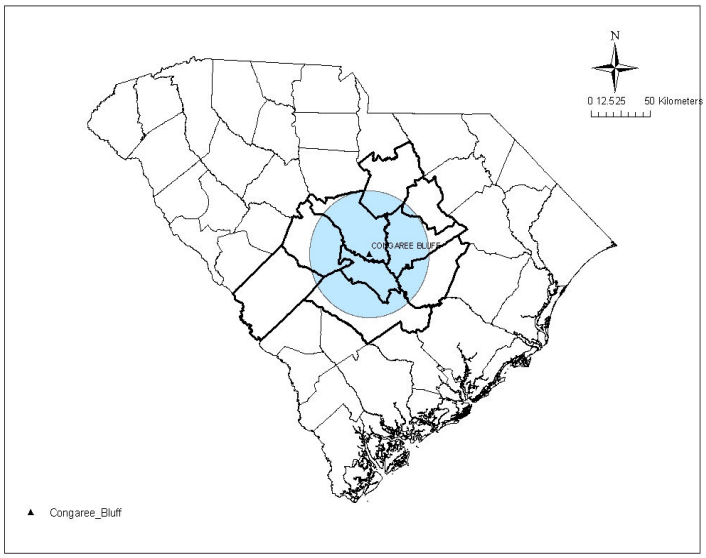
NO_2 monitoring will be discontinued at this site because this location is beyond the range of influence of significant NO_2 sources in the area.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	General / Background	SPM	4.42	FEM Ultraviolet Photometry	Continuous
SO_2	Urban	General / Background	SPM	4.42	Pulsed Fluorescent	Continuous
Mercury (vapor)	Urban	Source Impact	SPM	4.42	Cold Vapor Atomic Fluorescence	Continuous
Mercury Deposition	Urban	Deposition Trends	NADP-MDN	1.5	MDN protocol	Weekly samples
Acid Rain	Neighbor hood	Trends	STN	1.5	IC	Weekly
Meteorology		Local Conditions	STN	1.5	Instruments for precipitation	Continuous

Representative Area:

Urban



Sandhill Experimental Station
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-079-1001
Location: 900 Clemson Road
County: Richland
Coordinates: +34.131262, -80.868318
Date Established: 01/01/1959
Site Evaluation: The most recent site inspection was conducted on 07/01/2002.

The sample inlets are 33.5 meters from the nearest road.

The Sandhill Experimental Station site is located in northeastern Richland County, downwind from the Columbia metropolitan area. This site was established as an upwind background monitor on 05/02/1979. Sandhill is sited to represent urban scale concentrations of ozone. This monitor is a SLAMS site and is located in a rural setting to conduct background surveillance. The area represented by this monitor is dominated by area sources.

Changes for 2008

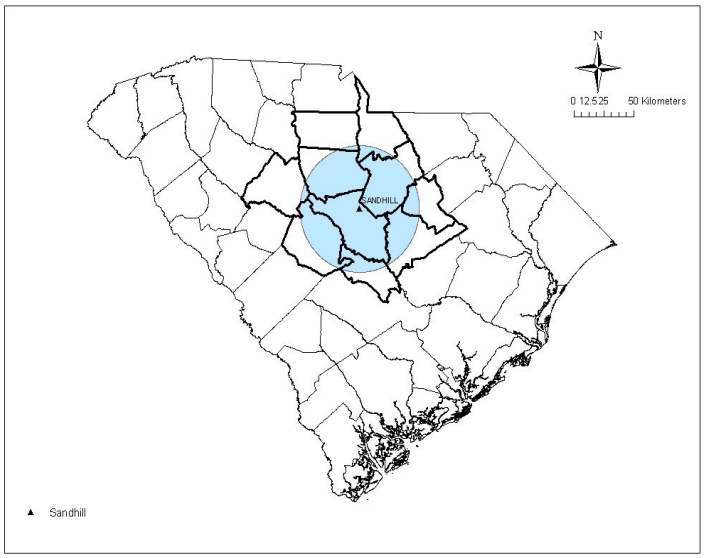
Addition of a SPM FRM $PM_{2.5}$ sampler as part of a rotation of trend monitoring in the Columbia MSA. Sampling at this location planned for no more than two years (2008-2009).

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SPM	1.5	FRM Gravimetric	1:3
Ozone	Urban	Upwind Background	SLAMS	4.3	FEM Ultraviolet Photometry	Continuous
Meteorology		Local Conditions	SPM	10.0	Instruments for wind speed, wind direction	Continuous

Representative Area:

Urban

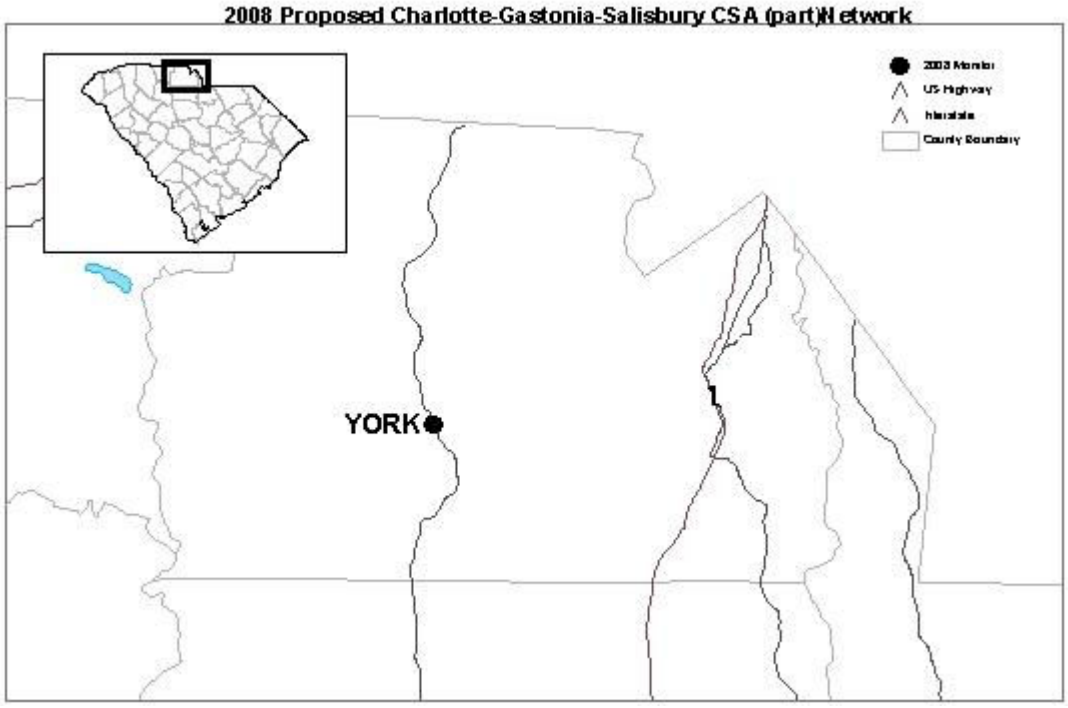


Columbia MSA Ozone Study
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
County:

In order to better understand the spatial distribution of ozone concentrations in the midlands, data from existing monitoring sites (Congaree Bluff, Parklane and Sandhill) will be supplemented by additional sites in appropriate areas in the MSA indicated by models and other available tools. This project , planned for no sooner than the 2009 Ozone season will build on the experience gained in the Greenville MSA Ozone Study to improve the Ozone monitoring network for the midlands The SPM monitors will be operated for no more than two ozone seasons with the primary goal of identifying the most appropriate sites for the required MSA SLAMS.

The Department will develop a project plan for the monitoring and data analysis activity to better define the scope of the study prior to implementation. All data will be reported to AirNOW for generation of area Air Quality maps and to support air quality forecasting.

Charlotte-Gastonia-Salisbury CSA (part)



AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP/Lead	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Acid Rain	MET
45-021-0002	York CMS						●									O
	TOTAL	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1

O SPM
● SLAMS

York CMS
Air Quality Control Region: Metropolitan Charlotte (167)
CSA/MSA: Charlotte-Gastonia-Salisbury CSA / Charlotte-Gastonia-Concord MSA
AQS Site ID: 45-091-0006
Location: 2316 Chester Highway (US 321)
County: York
Coordinates: +34.935817, -81.228409
Date Established: 03/30/1993
Site Evaluation: The most recent site inspection was conducted on 06/13/2006.

The sample inlets are 171.38 meters from the nearest road.

The York CMS site is located in south-central York County. The site was established as an upwind/downwind location on 03/30/1993 representing urban scales impacts near the Charlotte urban area. This monitor is a SLAMS site in a rural setting to support Charlotte-Rock Hill reporting and forecasting. The area represented by this monitor is dominated by area sources.

This site is important for forecasting ozone concentrations in the Charlotte Metropolitan area. Additionally, the long historical record and location of the site make the data useful to both North and South Carolina Air Programs.

Changes for 2008

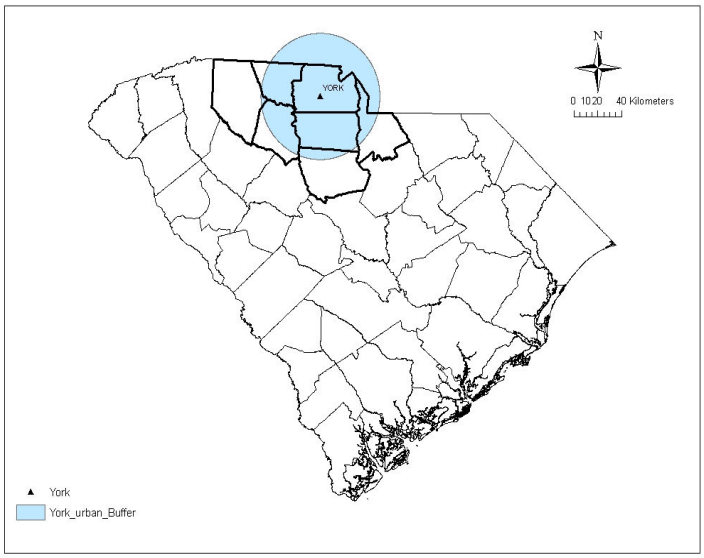
No changes are planned for 2008.

Monitors:

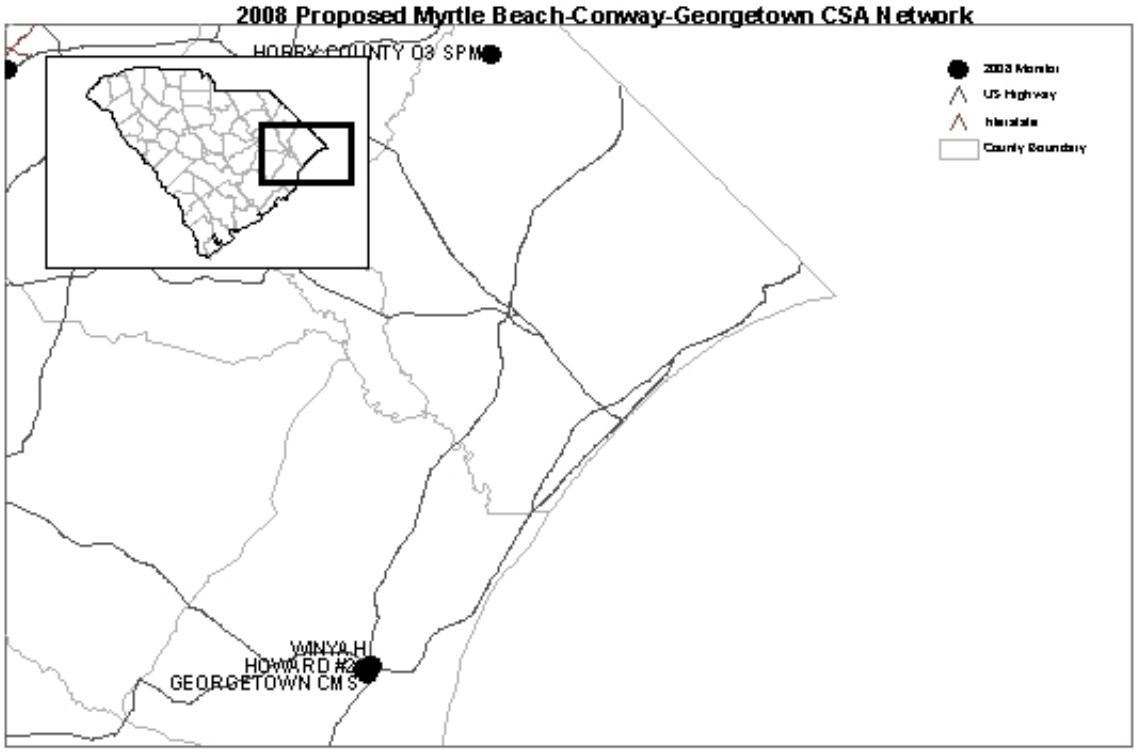
Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Extreme Downwind	SLAMS	3.33	FEM Ultraviolet Photometry	Continuous
Meteorology		Local Conditions	SPM	10.0	Instruments for wind speed, wind direction.	Continuous

Representative Area:

Urban



Myrtle Beach-Conway-Georgetown CSA



AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP/Lead	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Mercury	Acid Rain	MET
45-043-0006	Georgetown CMS				O												O
45-043-0010	Howard High School #2	O			O												
Not Available	Horry County O_3 SPM						O										
	TOTAL	1	0	0	2	0	1	0	0	0	0	0	0	0	0	0	1

O SPM
● SLAMS

Georgetown CMS
Air Quality Control Region: Georgetown (204)
CSA/MSA: Myrtle Beach-Conway-Georgetown CSA
AQS Site ID: 45-043-0006
Location: 1369 Dock Street
County: Georgetown
Coordinates: +33.362014, -79.294251
Date Established: 10/25/1972
Site Evaluation: The most recent site inspection was conducted on 04/02/2007.

The sample inlets are 21 meters from the nearest road.

The Georgetown CMS site is located in Georgetown County. This site was established as a source-oriented ambient surveillance monitor on 01/03/1975. Georgetown CMS is located in an industrial area dominated by point sources and does not represent typical population exposures. The Georgetown CMS site has continuous monitoring for meteorology and PM_{10}.

Monitoring in the city residential areas (Merryville, Howard High and Winyah) have confirmed this location is middle scale.

Changes for 2008

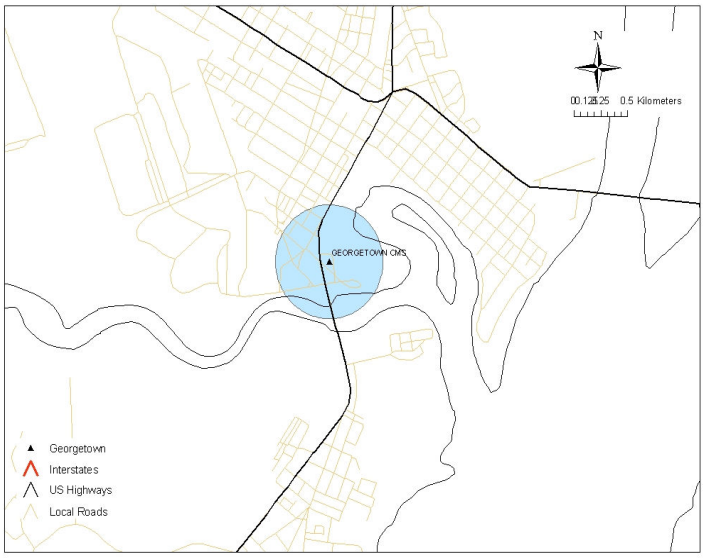
TSP/Lead and SO_2 monitoring will be discontinued, ending January 1, 2007. Alternative methods of continuous particulate monitoring will be investigated and evaluated for potential installation as a long term monitoring tool.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
PM_{10}	Middle	Industrial Impact / Highest Concentration	SPM	4.0	FEM TEOM	Continuous
Meteorology		Local Conditions	SPM	10.0	Instruments for wind speed, wind direction and precipitation	Continuous

Representative Area:

Middle



Howard High School #2
Air Quality Control Region: Georgetown (204)
CSA/MSA: Myrtle Beach-Conway-Georgetown CSA
AQS Site ID: 45-043-0010
Location: Butts St & Merriman Rd
County: Georgetown
Coordinates: +33.367807, -79.298399
Date Established: 03/18/2002
Site Evaluation: The most recent site inspection was conducted on 12/10/2002.

No picture available.

The sample inlets are 46 meters from the nearest road.

The Howard High School #2 site is located in Georgetown County in the city of Georgetown. This site was established as a source-oriented ambient surveillance monitor on 03/27/2002.and is representative of middle scale concentrations. The site is located in an urban and center city setting. The area represented by this site is dominated by point sources. The Howard High School #2 site has samplers for $PM_{2.5}$ and PM_{10}.

Changes for 2008

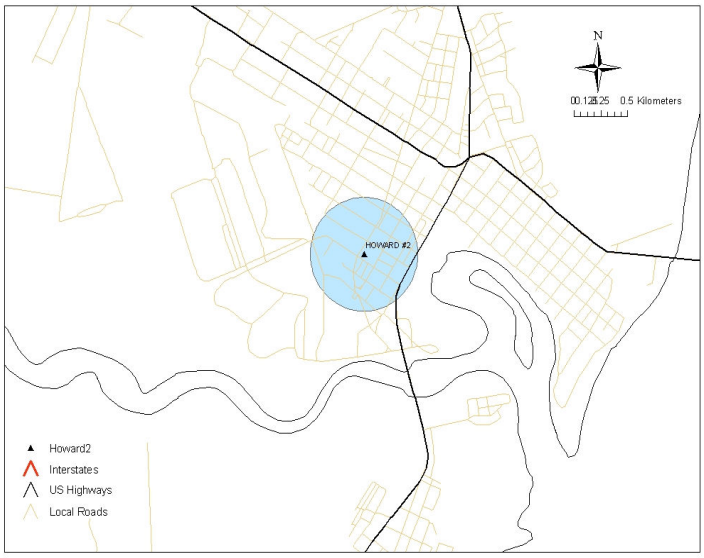
TSP/Lead sampling at this location will be discontinued. A $PM_{2.5}$ sampler will be moved from the former Winyah site to provide measurements of the particulate fraction of most concern for public health. The Department will work with the property owner to minimize potential local impacts at the site . Relocation of the site on the property may be necessary to make needed improvements.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Middle	Population Exposure	SPM	2(est)	Gravimetric	1:3
PM_{10}	Middle	Highest Concentration	SPM	2.0	Gravimetric	1:6

Representative Area:

Middle



Horry County O_3 SPM
Air Quality Control Region: Georgetown (204)
CSA/MSA: Myrtle Beach-Conway-Georgetown CSA / Myrtle Beach-Conway-North Myrtle Beach MSA
AQS Site ID: 45-051-xxxx
Location: TBD in NW Horry County
County: Horry
Coordinates:
Date Established: 2008
Site Evaluation:

No picture available.

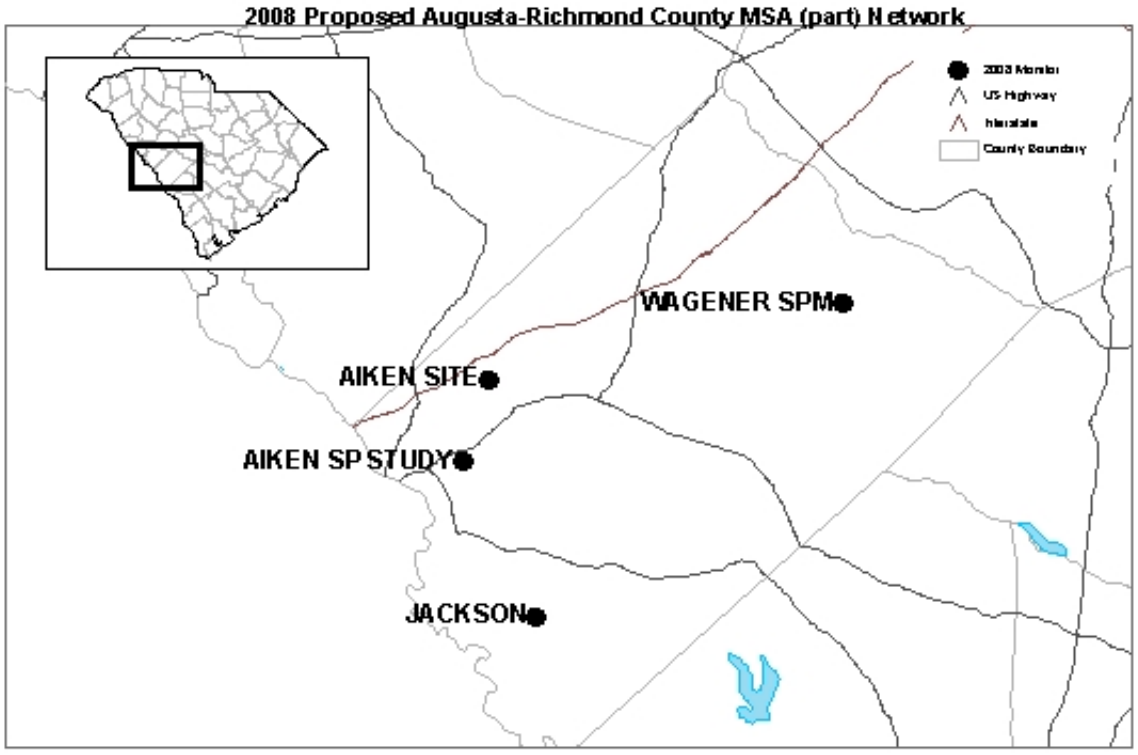
Ozone concentrations in the coastal plain along the northeast border of the state haves not been monitored. The Myrtle Beach-Conway-North Myrtle Beach MSA is one of the fastest growing areas of the state. Monitoring data from this area will be useful to Planners, modelers and forecasters. To support these needs, the Department will conduct ozone monitoring to determine if additional or long term measurement is appropriate.

Monitors: A SPM ozone monitor, operating for no more than two consecutive Ozone seasons will be established near the north Carolina-South Carolina Border to meet the needs of the data users.

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Regional	Background Transport	SPM	4(est)	FEM Ultraviolet Photometry	Continuous

Representative Area:

Augusta-Richmond County MSA (part)



AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP/Lead	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Mercury	Acid Rain	MET
45-003-0003	Jackson Middle School						●		○								
45-037-0001	Trenton	●	○				●										
Not Available	North Aiken County						○										
Not Available	Aiken Particulate Study	○															
	TOTAL	2	1	0	0	0	3	0	1	0	0	0	0	0	0	0	0

○ SPM
● SLAMS

Jackson Middle School
Air Quality Control Region: Augusta-Aiken (053)
CSA/MSA: Augusta-Richmond County MSA
AQS Site ID: 45-003-0003
Location: 8217 Atomic Road (Indian Drive – School)
County: Aiken
Coordinates: +33.342226, -81.788731
Date Established: 10/24/1985
Site Evaluation: The most recent site inspection was conducted on 06/16/2006.

The sample inlets are 138.8 meters from the nearest road.

The Jackson Middle School site is located in southwestern Aiken County at the Jackson middle school. The site is designed to represent urban concentration scales. Jackson is a SLAMS site located in a suburban setting to conduct source-oriented ambient surveillance. The area represented by this site is now dominated by area sources. The Jackson site has monitors for NO_2, and ozone.

Changes for 2008

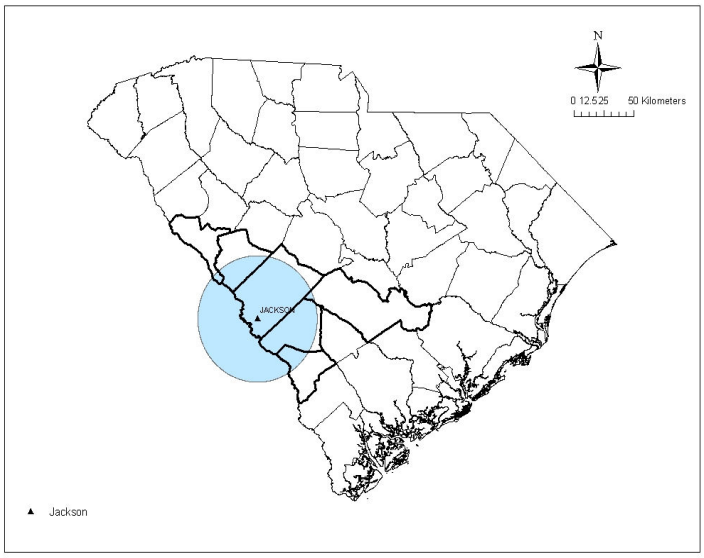
PM_{10} sampling at this location will be discontinued.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Source Oriented	SLAMS	4.02	FEM Ultraviolet Photometry	Continuous
NO_2	Urban	Source Oriented	Industrial	4.02	Chemiluminescence	Continuous

Representative Area:

Urban



Trenton
Air Quality Control Region: Augusta-Aiken (053)
CSA/MSA: Augusta-Richmond County MSA
AQS Site ID: 45-037-0001
Location: Woodyard Road (Hwy 121)
County: Edgefield
Coordinates: +33.739963, -81.853635
Date Established: 03/28/1980
Site Evaluation: The most recent site inspection was conducted on 03/18/2003.

The sample inlets are 35.2 meters from the nearest road.

The Trenton site is located in southeastern Edgefield County. Trenton was originally placed as the Aiken Augusta area downwind expected ozone maximum site and represented urban scale. This site is in a rural setting dominated by area sources. The Trenton site has had both FRM and continuous monitoring for $PM_{2.5}$.

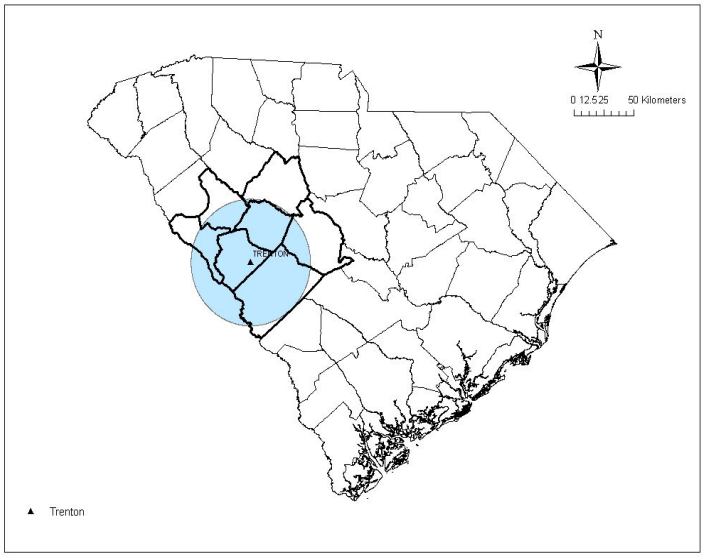
Changes for 2008
In order to better characterize ozone concentrations in the South Carolina portion of the MSA, the Department will establish a site closer to North Augusta in Aiken County. Trenton will continue concurrent operation for no less than one year to permit evaluation of concentration difference and variability between it and the new site and preserve a continuous data record for the Aiken area.

Monitors:

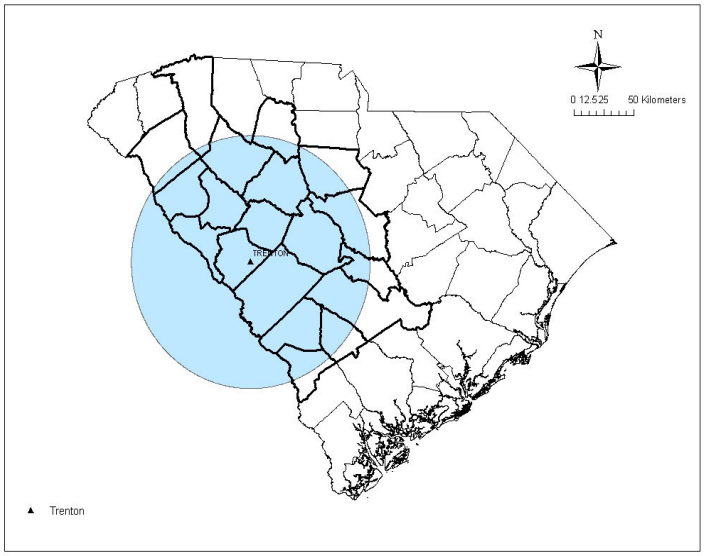
Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Regional	Regional Transport	SLAMS	4.5	Gravimetric	1:3
Continuous $PM_{2.5}$	Regional	Regional Transport	SPM	1.8	TEOM Gravimetric 50°C	Continuous
Ozone	Urban	Upwind Background Highest Concentration	SLAMS	3.6	FEM Ultraviolet Photometry	Continuous

Representative Area:

Urban



Regional



North Aiken County
Air Quality Control Region: Augusta-Aiken (053)
CSA/MSA: Augusta-Richmond County MSA
AQS Site ID: 45-003-xxxx
Location: TBD somewhere in northern Aiken County near North Augusta
County: Aiken
Coordinates:
Date Established: 2008
Site Evaluation:

No picture available.

This site is intended to be a replacement for the existing Trenton site. This site will run concurrently with Trenton for no less than one year to permit evaluation of concentration difference and variability between sites and preserve a continuous data record for the Aiken area.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban		SPM		FEM Ultraviolet Photometry	Continuous

Aiken Particulate Study
Air Quality Control Region: Augusta-Aiken (053)
CSA/MSA: Augusta-Richmond County MSA
AQS Site ID: 45-003-xxxx
Location: TBD special study to include North Augusta and Aiken
County: Aiken
Coordinates:
Date Established: 2008
Site Evaluation:

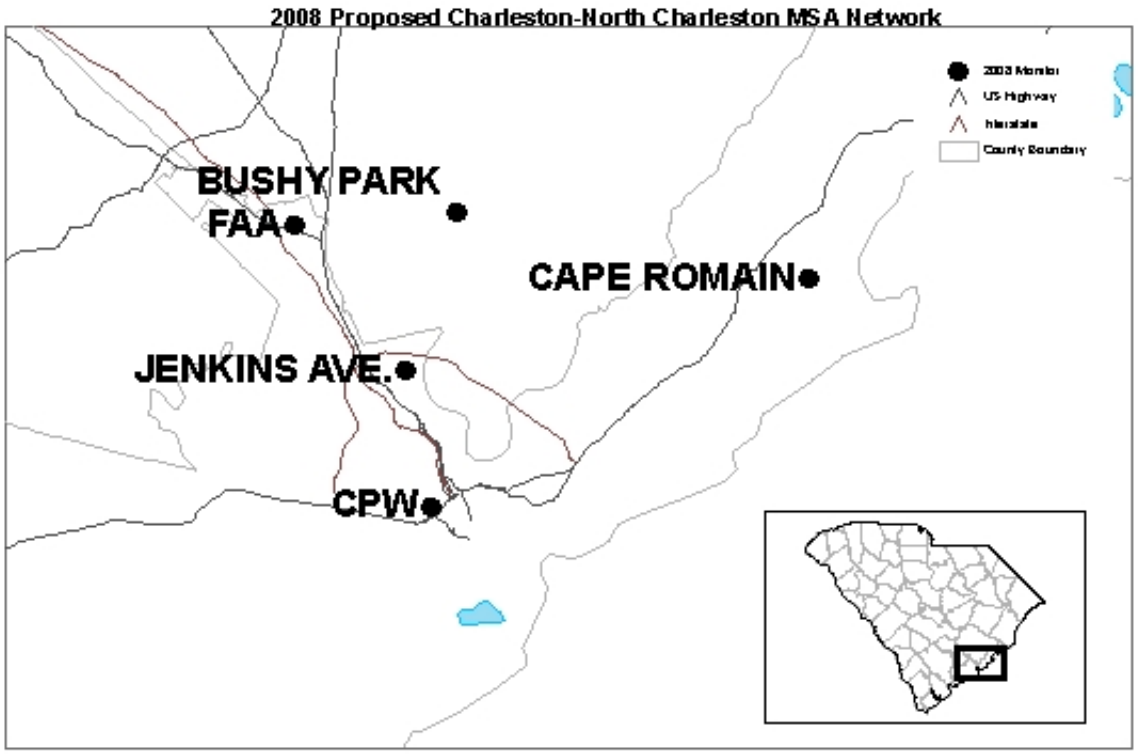
No picture available.

This special study will provide measurement and an opportunity for comparison of population oriented concentrations between the two Aiken county population centers and PM2.5 concentrations measured in the adjacent city of Augusta, Georgia. The priority for 2008 will be the siting and installation of a suitable North Augusta SPM site.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighborhood	Population Exposure	SPM		FRM Gravimetric or TEOM	1:3 or Continuous

Charleston-North Charleston MSA



AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP/Lead	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Acid Rain	MET
45-015-0002	Bushy Park Pump Station						●									
45-019-0003	Jenkins Ave. Fire Station		○		●											
45-019-0046	Cape Romain	○	○	○			●	●	○	○		○				○
45-019-0048	FAA	●														
45-019-0049	Charleston Public Works	●		●												
	TOTAL	4	2	2	1	0	2	1	1	1	0	1	0	0	0	1

○ SPM
● SLAMS

Bushy Park Pump Station
Air Quality Control Region: Charleston (199)
CSA/MSA: Charleston-North Charleston MSA
AQS Site ID: 45-015-0002
Location: 1530 Bushy Park Road (Goose Creek)
County: Berkeley
Coordinates: +32.987252, -79.936700
Date Established: 06/20/1978
Site Evaluation: The most recent site inspection was conducted on 03/17/2003.

The sample inlets are 11.3 meters from the nearest road.

The Bushy Park Pump Station site is located in southeastern Berkeley County downwind from the Charleston urban area. Bushy Park is sited to represent urban concentration scales. The area represented by this site is dominated by area sources. Ozone is the only pollutant measured at the Bushy Park site.

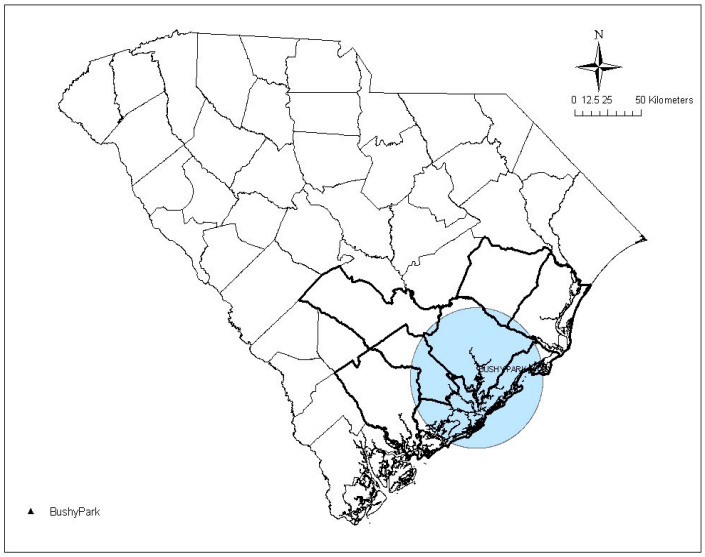
Changes for 2008
The site will remain at this location for 2008.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Highest Concentration	SLAMS	3.0	FEM Ultraviolet Photometry	Continuous

Representative Area:

Urban



Jenkins Ave. Fire Station
Air Quality Control Region: Charleston (199)
CSA/MSA: Charleston-North Charleston MSA
AQS Site ID: 45-019-0003
Location: 4830 Jenkins Ave.
County: Charleston
Coordinates: +32.882289, -79.977538
Date Established: 02/14/1969
Site Evaluation: The most recent site evaluation was conducted on 03/02/2005.

The sample inlets are 9.6 meters from the nearest road.

The Jenkins Ave. Fire Station site is located in the city of North Charleston. Jenkins Ave. Fire Station is sited to represent neighborhood scale concentrations. The site is located in an urban and center city setting to conduct source-oriented ambient surveillance. The area represented by this site is dominated by area sources. The Jenkins Ave. Fire Station site monitors PM_{10} and $PM_{2.5}$.

Changes for 2008

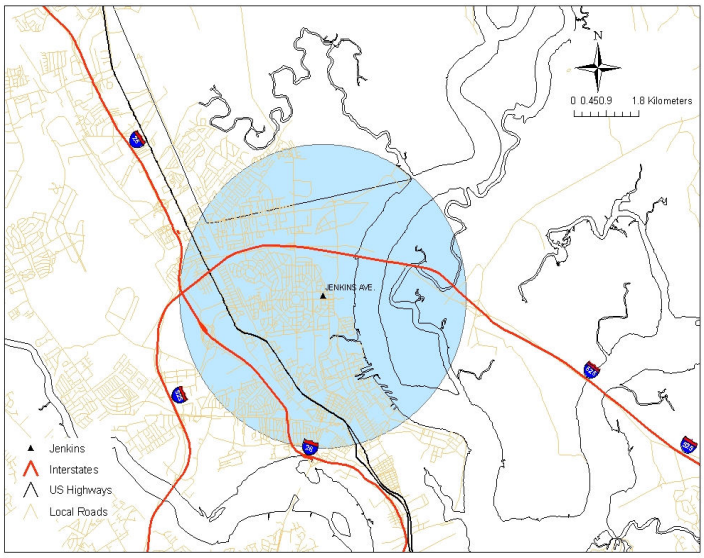
SO_2, and NO_2 monitoring and TSP sampling will be discontinued December 31, 2007. A continuous $PM_{2.5}$ monitor will be installed at this location to provide data for reporting to the public in the Charleston MSA.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighborhood	Maximum Concentration	SPM	4.3	TEOM	Continuous
PM_{10}	Neighborhood	Maximum Concentration	SLAMS	4.3	FEM TEOM	Continuous

Representative Area:

Neighborhood



Cape Romain
Air Quality Control Region: Charleston (199)
CSA/MSA: Charleston-North Charleston MSA
AQS Site ID: 45-019-0046
Location: 390 Bulls Island Road (Awendaw)
County: Charleston
Coordinates: +32.941023, -79.657187
Date Established: 07/11/1983
Site Evaluation: The most recent site inspection was conducted on 06/03/2005.

The Cape Romain site is located in Charleston County at the Cape Romain National Wildlife Refuge (NWR) near Moores Landing. The sample inlets are 18 meters from the nearest road.

The Cape Romain NWR is a Class I area about 20 miles northeast of Charleston. The majority of the Refuge area is offshore extending from Bull Island 20 miles to Cape Romain. The Refuge is bordered on the w by the inrtacoastal waterway. Inland are large tracts of forests with scattered residences. Several miles inland a primary coastal route, US Highway 17, parallels the coast, but there is little development along the section of highway that is close to the Refuge.

The area represented by this monitor is dominated by area sources. The Cape Romain site has samplers for monitors PM_{10}, TSP, and continuous monitors for CO, SO_2, ozone, meteorological parameters and $PM_{2.5}$.

The Cape Roman site is collocated with the Interagency Monitoring of Protected Visual Environments (IMPROVE) sampling site and nearby monitoring performed by other agencies includes precipitation chemistry and mercury deposition. The site has been used for multiple interagency and regional air monitoring projects.

Changes for 2008

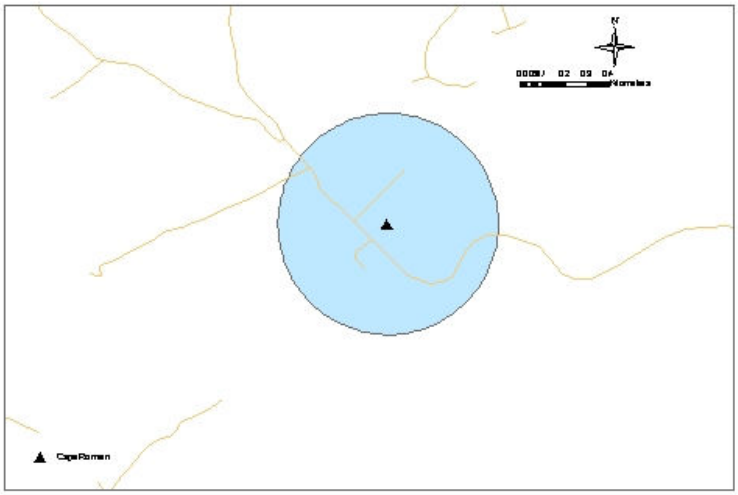
PM_{10} monitoring will be discontinued. CO monitoring will be retained until a trace level CO monitor can be installed. The Department will continue to look at the needs of this site in order to address regional haze monitoring needs.

Monitors:

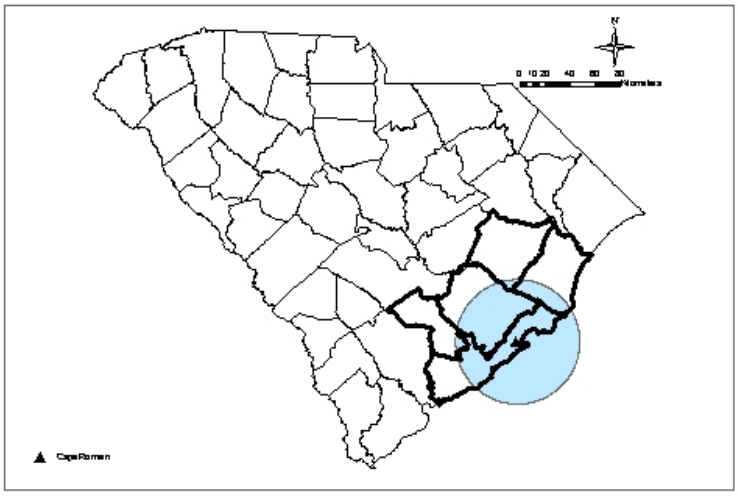
Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Urban	Visibility	Non-regulatory	3.0	IMPROVE	1:3
$PM_{2.5}$	Urban	General / Background	SPM	3.0	TEOM 30^{o}C	Continuous
Speciated $PM_{2.5}$		Visibility		3.0	IMPROVE protocol	1:3
Ozone	Regional	General / Background	SLAMS	4.0	FEM Ultraviolet Photometry	Continuous
SO_2	Regional	Source Oriented	SLAMS	4.0	FEM Pulsed Fluorescence	Continuous
NO_2	Regional	General / Background	SPM	4.0	FRM Chemiluminescence	Continuous
CO	Urban	General / Background	SPM	4.0	FRM Nondispersive Infrared	Continuous
Black Carbon	Regional	General / Background	SPM	4.0	Optical absorption	Continuous
Meteorology		Local Conditions	SPM	10.0	Instruments for wind speed, wind direction and precipitation	Continuous

Representative Area:

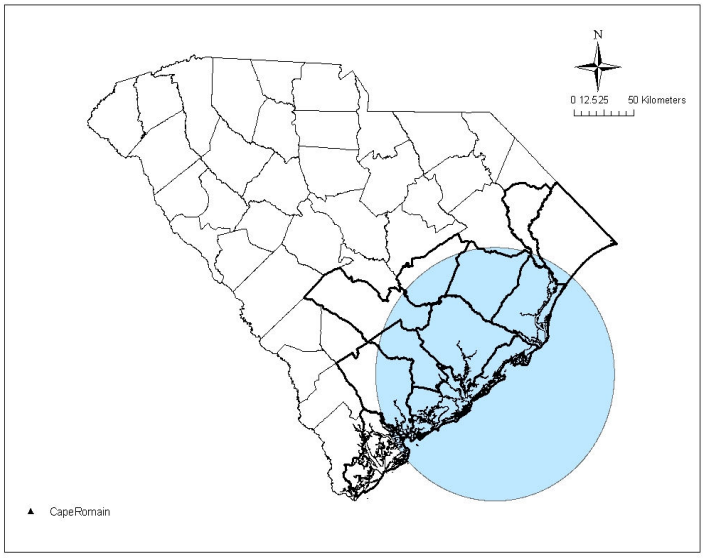
Middle



Urban



Regional



FAA
Air Quality Control Region: Charleston (199)
CSA/MSA: Charleston-North Charleston MSA
AQS Site ID: 45-019-0048
Location: 2670 Elms Plantation Blvd
County: Charleston
Coordinates: +32.980254, -80.065010
Date Established: 04/09/1999
Site Evaluation: The most recent site inspection was conducted on 05/04/2006.

The sample inlets are 50 meters from the nearest road.

The Charleston FAA Beacon is located in Charleston County approximately five miles northwest of the Charleston International Airport, near Charleston Southern University FAA is sited to represent neighborhood scale concentrations. This site is located in a suburban area dominated by area sources. This site has collocated $PM_{2.5}$ samplers to allow determination of method precision..

Changes for 2008

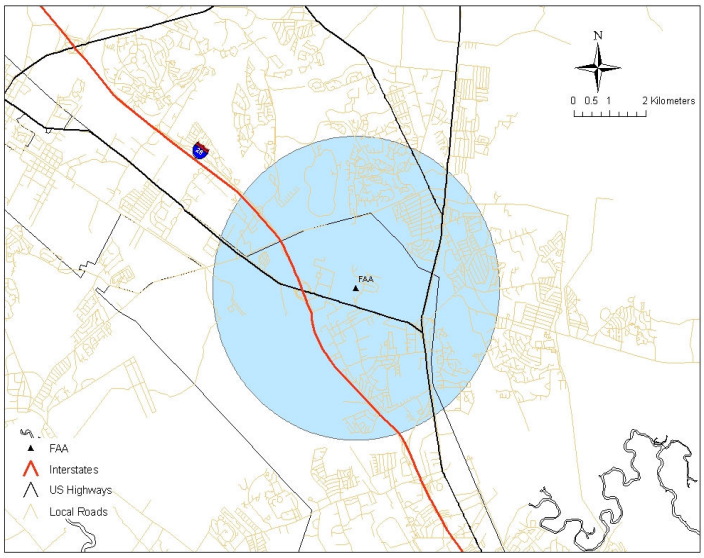
No changes are planned at FAA for 2008. Neither FAA nor CPW, the two sites representing the Charleston area, can accommodate the required continuous collocated $PM_{2.5}$ monitor for the MSA. The Department will begin a search of a suitable site on the Charleston peninsula to monitor Charleston area $PM_{2.5}$ concentrations and provide for timely reporting to the public. The new location will replace one or both of the existing $PM_{2.5}$ sites.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS	2.3	FRM Gravimetric	1:1
Collocated $PM_{2.5}$	Neighbor hood	Quality Assurance Precision	SLAMS	2.3	FRM Gravimetric	1:6

Representative Area:

Neighborhood



Charleston Public Works
Air Quality Control Region: Charleston (199)
CSA/MSA: Charleston-North Charleston MSA
AQS Site ID: 45-019-0049
Location: 360 Fishburne Street
County: Charleston
Coordinates: +32.790984, -79.958694
Date Established: 11/20/1998
Site Evaluation: The most recent site inspection was conducted on 04/24/2006.

The sample inlets are 28 meters from the nearest road.

The Charleston Public Works (CPW) site is located on the western side of the Charleston peninsula near downtown Charleston. This site is sited to represent neighborhood scale concentrations in an urban and center city to conduct population-oriented surveillance. The area represented by this site is dominated by area sources. In addition to the $PM_{2.5}$ sampler, CPW has a $PM_{2.5}$ speciation sampler that is the South Carolina station in the national Speciation Trends Network (STN).

Changes for 2008

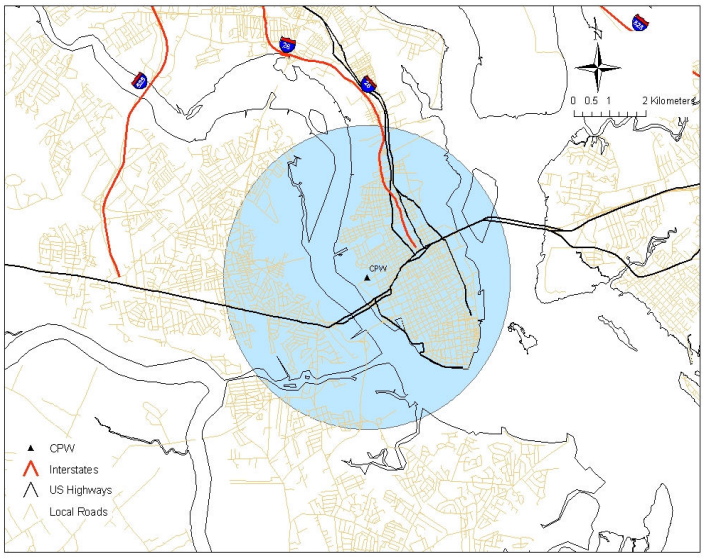
No changes are planned at CPW for 2008. Neither CPW nor FAA, the two sites representing the Charleston area can accommodate the required continuous collocated $PM_{2.5}$ monitor for the MSA. The Department will begin a search of a suitable site on the Charleston peninsula to monitor Charleston area $PM_{2.5}$ concentrations and provide for timely reporting to the public. The New location will replace one or both of the existing $PM_{2.5}$ sites.

Monitors:

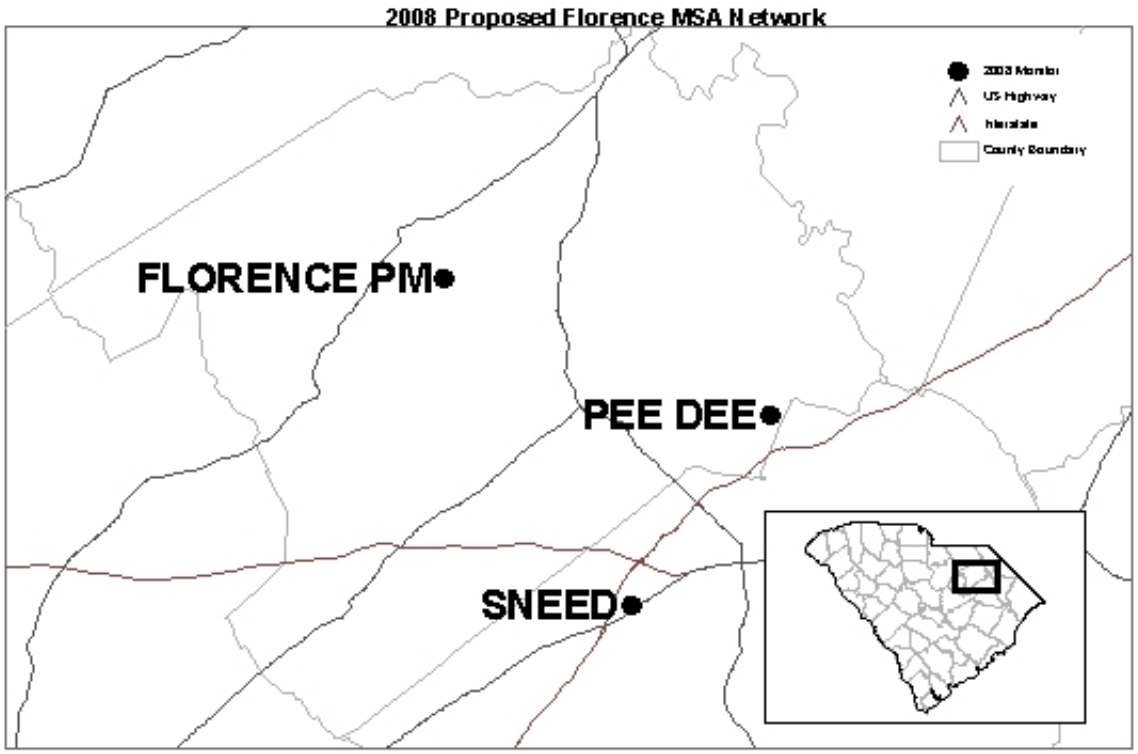
Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS	2.41	Gravimetric	1:1
Speciated $PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS Speciation	2.41	Energy dispersive XRF, Ion chromatography, STN TOT	1:3

Representative Area:

Neighborhood



Florence MSA



AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP/Lead	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Acid Rain	MET
45-031-0003	Pee Dee Exp. Station						●									
45-041-0002	HL Sneed Middle School	●														
Not Available	Florence	○	○													
	TOTAL	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0

○ SPM
● SLAMS

Pee Dee Experimental Station
Air Quality Control Region: Florence (201)
CSA/MSA: Florence MSA
AQS Site ID: 45-031-0003
Location: 2200 Pocket Road (Darlington)
County: Darlington
Coordinates: +34.285696, -79.744859
Date Established: 02/25/1993
Site Evaluation: The most recent site inspection was conducted on 03/14/2006.

The sample inlets are 91 meters from the nearest road.

The Pee Dee site is located in northeastern Darlington County. Pee Dee is sited to represent urban scale concentrations downwind of the Florence urban area. The monitor is a SLAMS site and is located in a rural setting to conduct background surveillance. The area represented by this monitor is dominated by area sources.

Changes for 2008

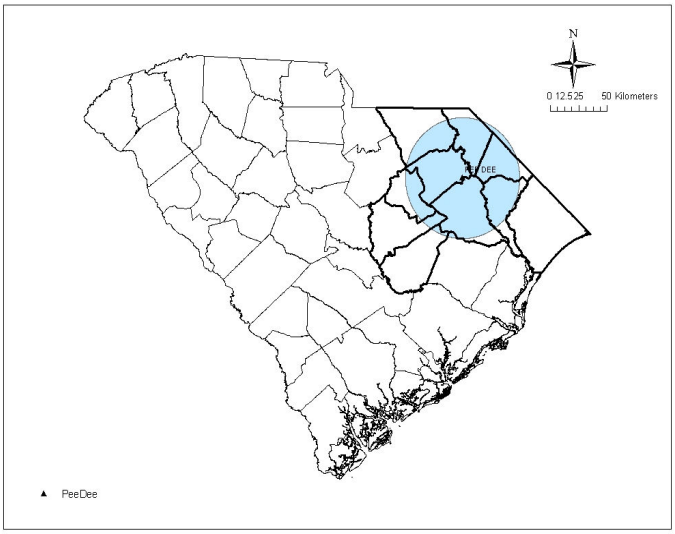
No changes are planned for 2008.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	General / Background	SLAMS	3.0	FEM Ultraviolet Photometry	Continuous

Representative Area:

Urban



H L Sneed Middle School
Air Quality Control Region: Florence (201)
CSA/MSA: Florence MSA
AQS Site ID: 45-041-0002
Location: 3300 Thornblade Drive
County: Florence
Coordinates: +34.167636, -79.850404
Date Established: 01/15/1999
Site Evaluation: The most recent site inspection was conducted on 03/16/2006.

The sample inlets are 70 meters from the nearest road.

The H L Sneed Middle School site is located in Florence County approximately 2 miles SSW of the I-20/I-95 interchange. The site was established to represent population exposure to $PM_{2.5}$ concentrations on the neighborhood scale on 02/23/1999. The sampler is a SLAMS located in on the edge of the Florence urban area. The area represented by this sampler is dominated by area source emissions. In addition to $PM_{2.5}$, the HL Sneed site has a TSP sampler.

Changes for 2008

A new monitoring site appropriate for the objectives and monitoring requirements for $PM_{2.5}$ will be established in Florence. Sampling at Sneed will continue concurrently with operation of the new site for no less than one year to permit evaluation of concentration difference and variability between it and the new site and preserve a continuous data record for Florence. TSP/Lead sampling will be discontinued.

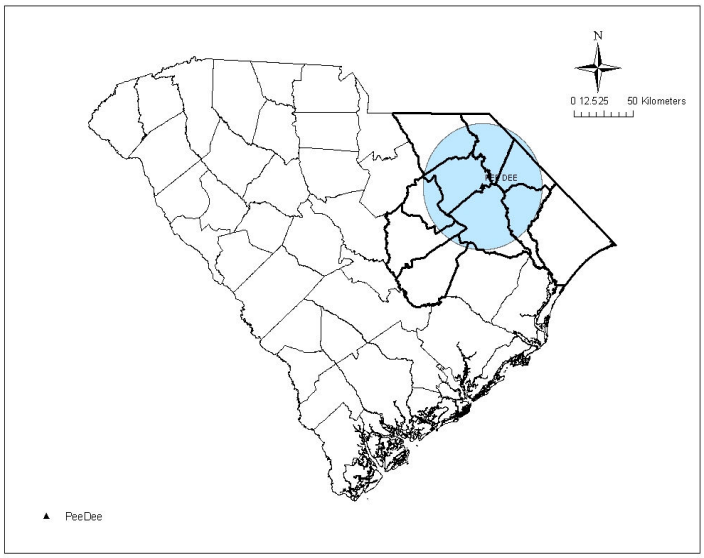
The Department will begin investigating locating to a new site in order to monitor in a maximum population exposure site.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS	2.5	Gravimetric	1:3

Representative Area:

Urban



Florence
Air Quality Control Region: Florence (201)
CSA/MSA: Florence MSA
AQS Site ID: 45-041-xxxx
Location: x
County: Florence
Coordinates: x
Date Established: 01/01/2008
Site Evaluation:

No picture available.

The Florence MSA requires one PM2.5 sampler in a population oriented area of expected maximum concentration. a collocated continuous monitor is also required to provide timely reporting of concentrations to the public.

Changes for 2008

A new monitoring site appropriate for the objectives and monitoring requirements for $PM_{2.5}$ will be established in Florence. Sampling at the existing Sneed site will continue concurrently with operation of the new site for no less than one year to permit evaluation of concentration difference and variability between it and the new site and preserve a continuous data record for Florence.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SPM	>4 (est)	FRM Gravimetric	1:3
Continuous $PM_{2.5}$	Neighbor hood	Population Exposure	SPM	>4 (est)	TEOM	Continuous

Remainder of State

AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP/Lead	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Acid Rain	MET
45-001-0001	Due West						●								○	○
45-025-0001	Chesterfield	●		●	●	○	●									○
45-029-0002	Ashton		○				○									
45-047-0003	Merrywood	○														
	TOTAL	2	1	1	2	1	3	0	0	0	0	0	0	0	1	2

○ SPM
● SLAMS

Due West
Air Quality Control Region: Greenwood (203)
CSA/MSA: None
AQS Site ID: 45-001-0001
Location: (50?) Jim Scott Lane
County: Abbeville
Coordinates: +34.325318, -82.386376
Date Established: 04/02/1991
Site Evaluation: The most recent site inspection was conducted on 03/16/2006.

The sample inlets are 70 meters from the nearest road.

The Due West site is located in northeastern Abbeville County. The site was established as a general/background location on 04/02/1991. Due West is sited to represent urban concentration scales. The area represented by this monitor is dominated by area sources.

Changes for 2008

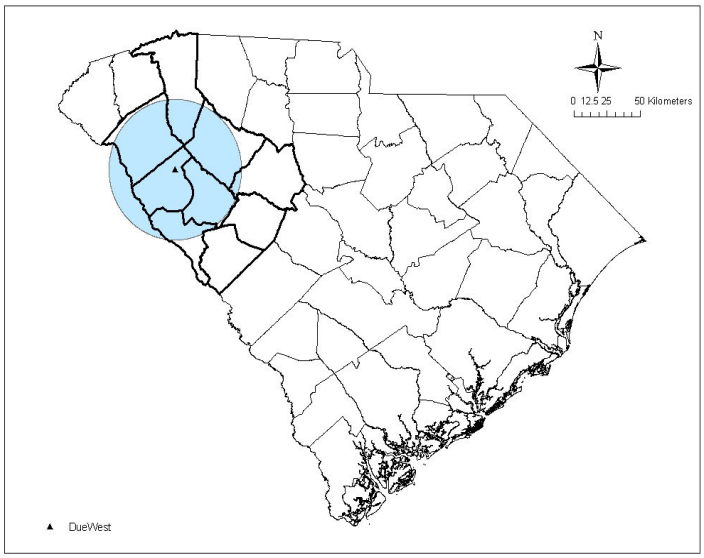
No changes are planned for 2008.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	General / Background	SLAMS	4.0	FEM Ultraviolet Photometry	Continuous
Acid Rain	Neighbor hood	Trends	SPM	1.5	IC	Weekly
Meteorology	Neighbor hood	Local Conditions	SPM	1.5	Instruments for precipitation	Continuous

Representative Area:

Urban



Chesterfield
Air Quality Control Region: Florence (201)
CSA/MSA: None
AQS Site ID: 45-025-0001
Location: Rt 2 Box 100 McBee (SC145)
County: Chesterfield
Coordinates: +34.615367, -80.198787
Date Established: 01/06/2000
Site Evaluation: The most recent site inspection was conducted on 04/21/2003.

The sample inlets are 45 meters from the nearest road.

The Chesterfield site is located in the central part of Chesterfield County. Chesterfield is sited to represent regional concentration scales. The area represented by this monitor is dominated by area sources. The Chesterfield site has continuous monitors for $PM_{2.5}$ and ozone. Sampling is done for $PM_{2.5}$, PM_{10} and meteorological parameters. In addition to the STN protocol $PM_{2.5}$ speciation sampling, this site also is a precision site, with collocated FRM samplers for $PM_{2.5}$.

Changes for 2008

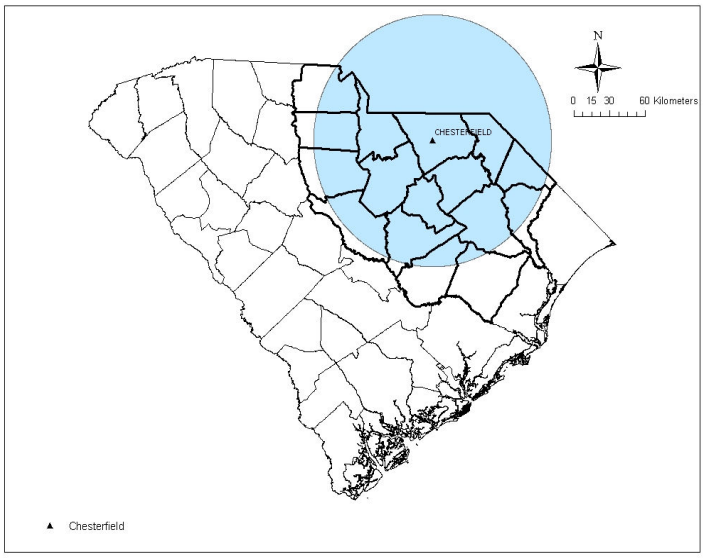
No changes are planned for 2008.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Regional	Regional Transport	NCORE	3.0	Gravimetric	1:3
Speciated $PM_{2.5}$	Regional	Regional Transport	SLAMS Speciation	3.0	Energy dispersive XRF, Ion chromatography, STN TOT	1:6
PM_{10}	Regional	General / Background	NCORE	3.0	Gravimetric	1:6
Collocated PM_{10}	Regional	General / Background	NCORE	3.0	Gravimetric	1:6
TSP			SPM			1:6
Ozone	Regional	General / Background	NCORE	2.0	FEM Ultraviolet Photometry	Continuous
Meteorology		Local Conditions	SPM	10.0	Instruments for wind speed, wind direction, and precipitation	Continuous

Representative Area:

Regional



Ashton
Air Quality Control Region: Savannah-Beaufort (058)
CSA/MSA: None
AQS Site ID: 45-029-0002
Location: Ashton Road (S-13-18)
County: Colleton
Coordinates: +33.007866, -80.965038
Date Established: 03/07/1990
Site Evaluation: The most recent site inspection was conducted on 04/18/2005.

No picture available.

The sample inlets are 8 meters from the nearest road.

The Ashton site is located in northwestern Colleton County. The site was established as a general/background location on 03/07/1990. The area represented by this monitor is dominated by area sources. In addition to monitoring ozone, the Ashton site also monitors $PM_{2.5}$.

Changes for 2008

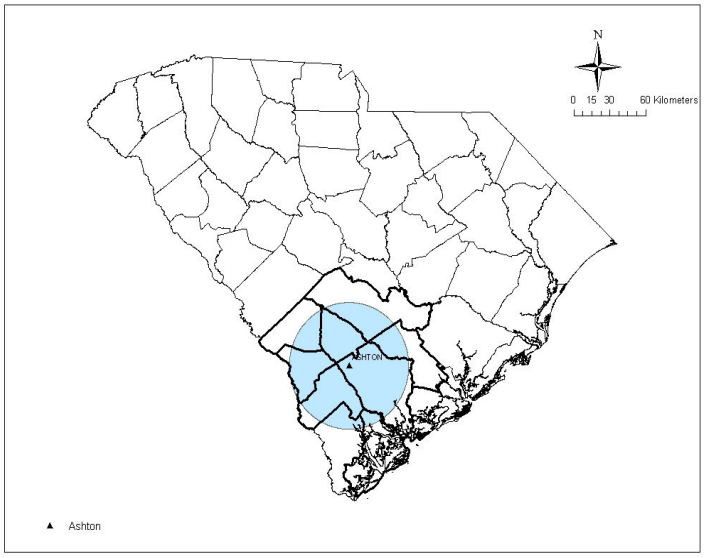
No changes are planned for 2008.

Monitors:

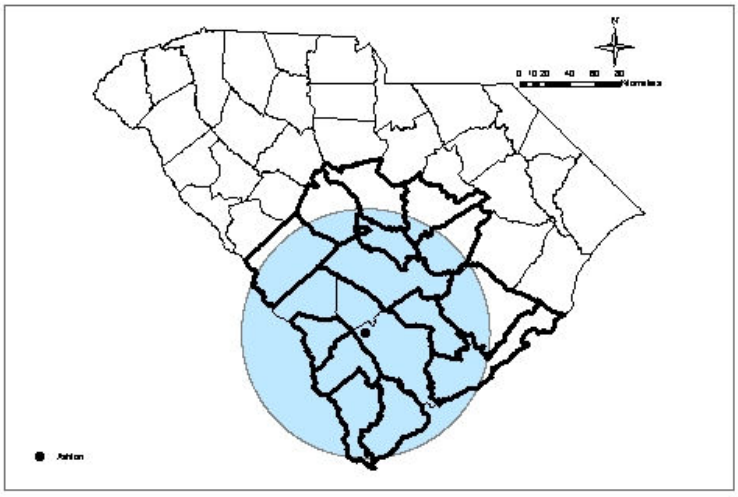
Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Continuous $PM_{2.5}$	Regional	General / Background	SPM	4.0	TEOM – Gravimetric 50 deg C	Continuous
Ozone	Urban	General / Background	SPM	4.0	FEM Ultraviolet Photometry	Continuous

Representative Area:

Urban



Regional



Merrywood
Air Quality Control Region: Greenwood (203)
CSA/MSA: None
AQS Site ID: 45-047-0003
Location: Merrywood Road
County: Greenwood
Coordinates: +34.212869, -82.173149
Date Established: 12/01/1998
Site Evaluation: The most recent site inspection was conducted on 03/08/2005.

The sample inlets are 40 meters from the nearest road.

The Merrywood site is located in Greenwood County at Merrywood Elementary School in the town of Greenwood. The site was established as a population exposure sampler on 12/01/1998. This sampler is sited to represent neighborhood scale concentrations of $PM_{2.5}$. The sampler is a SLAMS located in a suburban setting to conduct population-oriented surveillance. The area represented by this sampler is dominated by area source emissions.

Changes for 2008

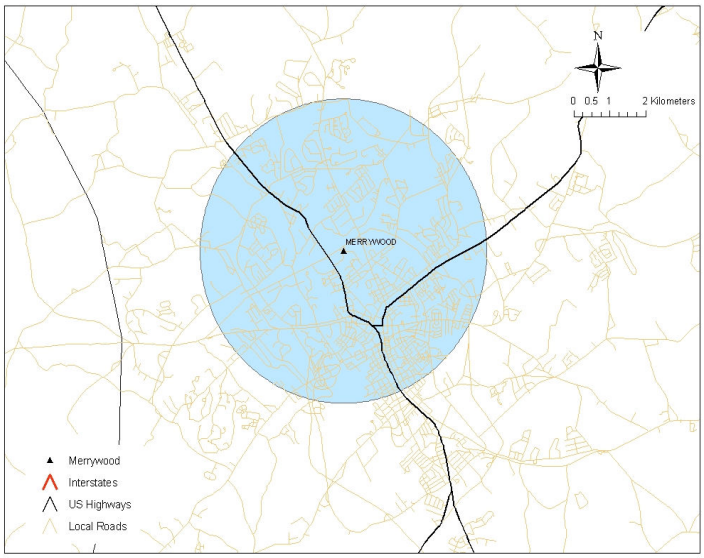
The Department will change the designation of the $PM_{2.5}$ sampler to SPM, and begin a special study which will rotate $PM_{2.5}$ samplers throughout the state in order to assess $PM_{2.5}$ concentrations through smaller cities in South Carolina.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SPM	2.5	Gravimetric	1:3

Representative Area:

Neighborhood



Network Development

The ambient air monitoring network provides data to support an array of decisions ranging from development of emissions strategies to protect and improve air quality to the level of activity for individuals in sensitive populations. To support these varied data users, the network must provide both stable long term measures to document trends and rapid reporting of conditions to the public. In response to land use, population and urban areas growth, some portion of the network must be adjusted to meet the changing conditions and needs.

The network described in this plan is a significant transition from the network that has evolved in the last thirty-five years. It reflects the successes in reducing ambient concentrations of Total Suspended Particulate, lead, carbon monoxide, nitrogen oxides and sulfur dioxide and the increasing concern about the impact of fine particles and ozone on Public Health.

As resources become available and after the extra monitoring needed in this transition is completed, studies similar to the Greenville MSA Ozone Project are planned for the major urban areas to gain better understanding of the air quality and provide information to improve the monitoring network. In addition to the intensive studies that provide a detailed 'snapshot,' it is intended that SPM fixed sites be established and monitored in rotation to provide regular checks and long term tracking of the trends in air quality in all areas of the state including smaller cities, towns and rural areas. The implementation of this long term strategy will be developed during this transition and implemented as resources again become available.

Areas where long term strategies are being considered include:

Greenville MSA Ozone Study (begin 2008) - addition of supplementary SPM ozone sites to investigate variability and refine monitoring network to meet objectives.

Columbia MSA Ozone Study - addition of supplementary SPM ozone sites to investigate variability and refine monitoring network to meet objectives.

Columbia MSA particulate surveillance(begin 2008) - rotation of SPM $PM_{2.5}$ sites through areas with higher rates of growth an changes in land use to determine trends and identify areas of concern (Parklane, Sandhill, and potentially Lower Richland, Lexington and Chapin.)

Aiken MSA Ozone Study - addition of supplementary SPM ozone site (possibly Wagener) to investigate proper size of MSA network and additionally monitor trends in rural areas between the North Augusta-Aiken area and Columbia.

Aiken MSA Particulate Study (begin 2008) - investigation of SPM $PM_{2.5}$ concentrations in North Augusta and Aiken along with existing rural data to determine population exposure and potential need for monitoring of mass or the components of particulate to assist in area Air Quality improvement efforts.

Charleston-North Charleston MSA Ozone Study - investigation of more appropriate location for the MSA maximum concentration site.

Charleston-North Charleston Particulate Project - multi-objective investigation to identify a single site to potentially replace FAA and CPW and establish current baseline concentrations and population exposure in the Charleston 'neck'.

York County Ozone Study -limited investigation of. ozone population exposure, spatial variability and transport supplementing existing North and South Carolina monitoring.

This is the first of many comprehensive annual monitoring plans that will describe the network in more detail and will be more accessible than has been previously available. We encourage you to be involved in

the protection of air quality through your suggestions to improve the network, this presentation of the plan and in the individual choices you make that impact our environment.

Sites Discontinued for 2008

Monitoring will be discontinued effective December 31, 2007

Site	ID	Parameters	Date Established	
Greenville MSA				
Monaghan Mill	45-045-0010	PM_{10}, $PM_{2.5}$	January 31,2005	Well below standard, Special Study site
Greer	45-045-2002	TSP/Lead	March 8 1977	Well below Standard
Spartanburg MSA				
Spartanburg City Hall	45-083-0001	PM_{10}, TSP/Lead	December29,1964	Well below Standard
Charlotte-Gastonia-Concord MSA				
Rock Hill	45-091-0005	TSP/Lead	December 12, 1984	Well below Standard
Columbia MSA				
Olympia	45-079-0018	PM_{10}, SO_2	October 30,1991	Special Study Site
DHEC	45-079-0021	PM_{10}	August 26,1969	Well below Standard
Sumter MSA				
Sumter	45-085-0001	TSP/Lead	January 1 1969	Well below Standard
Myrtle Beach-Conway-North Myrtle Beach MSA				
MyrtleBeach	45-051-0002	$PM_{2.5}$, TSP/Lead	December 31, 1990	Well below Standard
Georgetown mSA				
Maryville	45-043-0007	TSP/Lead	January 31,1977	Well below Standard
Remainder of State				
Chester	45-023-0002	Ozone	February 23/1980	Redundant data
Cowpens	45-021-0002	Ozone	March 25,1988	Realignment of network
Delta	45-087-0001	Ozone	August 20,1983	Redundant data
Indiantown	45-089-0001	Ozone	April 23, 1991	Redundant data
Barnwell	45-011-0001	NO_2, SO_2, Ozone , PM_{10}	November 11,1985	Realignment of network
Beaufort	45-013-0007	$PM_{2.5}$, TSP/Lead	February 1,1999	Well below Standard
Greenwood	45-047-0001	TSP/Lead	October20, 1966	Well below Standard
Premier Road	45-047-0002	TSP/Lead	January 27, 1999	Well below Standard
Merrywood	45-0470003	$PM_{2.5}$	December 1, 1998	Realignment of network

REFERENCE

[1] http://www.scdhec.net/environment/baq/ambientairmonitoring.aspx
[2] http://www.epa.gov/ttn/amtic/calendar.html

EPA Resource documents (available on DHEC Web Site)

http://www.scdhec.net/environment/baq/ambientairmonitoring.aspx

- Guidance on Ozone Monitoring Site Selection EPA-454/R-98-002, August 1998
- Optimum Site Exposure Criteria for SO2 Monitoring EPA-450/3-77-013 April 1977
- Guidance for Siting Ambient Air Monitors Around Stationary Lead Sources EPA-450/4-87-007 May 1987
- Guidance for Network Design and Optimum Site Exposure For PM2.5 and PM10 EPA 454/R-99-022 December 1997
- Site Selection for the Monitoring of Photochemical Air Pollutants April 1987